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**Staff Attitudes to Personality Disorder: the role of
personality, emotion regulation, empathy and
compassion**

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Thesis Abstract

Personality disorder is common amongst individuals accessing mental health services, with research into its aetiology and impact on services increasing in recent years. This thesis has two parts. The first is a systematic review of the neuropsychological functioning among forensic samples with diagnoses of psychopathy and antisocial personality disorder (ASPD). Five databases were searched for cross-sectional studies exploring cognitive functioning in psychopathy and ASPD. Twelve studies were reviewed and indicated that individuals with psychopathy and ASPD demonstrate deficits in executive functions, attention, and memory, and that there are some differences in neuropsychological performance between the two disorders. The second part is an empirical study exploring factors that may influence mental health staff attitudes towards individuals with personality disorder. The study found that staff personality traits, emotion regulation style, empathy and job satisfaction were related to attitudes to personality disorder. Empathy and job burnout predicted attitudes, with higher scores on empathy and lower levels of burnout being related to positive attitudes to personality disorder. Implications for the findings of the systematic review and empirical study are discussed. Further research is required in both areas.

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Systematic Review

Title: Neuropsychology of Psychopathy and Antisocial Personality Disorder: a systematic review

Word count: 9318

Prepared in accordance with the author guidelines for *Journal of Clinical and Experimental Neuropsychology* (Appendix A)

Abstract

Research exploring the neuropsychology of psychopathy and antisocial personality disorder (ASPD) has generated mixed results due to varying definitions of psychopathy and ASPD, and these terms often being used interchangeably. A systematic review was conducted of studies exploring neuropsychological functioning among individuals with psychopathy and ASPD compared to controls. Studies measuring executive function, attention, memory, and visuo-spatial functioning were included. The results indicated that psychopaths and ASPD individuals exhibited some deficits in executive functioning, attention, and memory compared to controls, with differences between the two disorders. Due to limitations, further research is required to clarify neuropsychological profiles of these disorders.

Keywords: neuropsychology, cognitive, psychopathy, antisocial personality, personality disorder

Introduction

Antisocial Personality Disorder and Psychopathy

Antisocial Personality Disorder (ASPD) is characterized by disregard for the rights of others, impulsivity, aggression, deception for personal gain, lack of remorse, and a failure to conform to lawful behaviour and social norms (American Psychiatric Association, 2000). The disorder is prevalent in approximately 3% of the male adult population and 1% of females (American Psychiatric Association, 1994), and the behavioural patterns develop from childhood or early adolescence, and continue into adulthood.

Psychopathy is characterised by a range of interpersonal, affective, and behavioural deficits, including a lack of remorse and empathy, callousness, manipulation, impulsivity, antisocial and reckless behaviour (Hare, 1991). Psychopathy is prevalent in approximately 1% of the population (Hare, 1999). Despite the overlap of characteristics between psychopathy and ASPD, and the terms being used interchangeably at times, they are considered to be distinct disorders (Hare, 1996). Although most individuals with psychopathy would also meet criteria for ASPD, only a third of those with antisocial personality would be considered to be psychopathic (Hart & Hare, 1996).

Both disorders are associated with engagement in criminal behaviour, with high prevalence of the disorders in offender populations. It is approximated that between 50-80% of those in the UK prison population, and around 38% in UK high security hospitals would meet criteria for ASPD (Singleton, Meltzer & Gatward, 1998; Coid, 1992; Hare, 1998). The prevalence of psychopathy is not as high, and in the UK prison population it is approximated that less than 20% of those with ASPD would meet Hare's 1991 criteria for psychopathy (Hare, 1998).

Neuropsychology and antisocial behaviour

In recent years, there has been increasing interest in the aetiology of antisocial behaviour and personality disorders characterized by such behaviour, including

ASPD and psychopathy. One area of research has focused on the exploration of neuropsychological functioning in these disorders. The implication of brain functioning in antisocial behaviour became apparent through case reports of head injuries being associated with presentations that were antisocial or pseudo-psychopathic (Benson & Blumer, 1975; Damasio, 1994). There has also been more recent evidence from imaging studies of differences in brain matter between individuals with ASPD and healthy controls (e.g. Raine, Lencz, Birchle, LaCasse & Colletti, 2000). A number of neurobiological models of antisocial behaviour/personality and psychopathy have been developed, including the Response Modulation hypothesis (Newman, 1998), Somatic Marker hypothesis (Damasio, 1994), and Integrated Emotions System model (Blair, 2006).

The majority of studies to date have focused on executive functioning in these disorders and antisocial behaviour more generally. Impairment in executive functioning has been found in studies of those with ASPD (e.g. Gillen & Hessebrock, 1992; Deckel, Hesselbrock & Bauer, 1996). There is empirical evidence from studies of neuropsychological testing or neuroimaging in antisocial populations (Miller, 1987; Moffitt & Henry, 1991; Dolan, 1994; Morgan & Lilienfeld, 2000) that these individuals exhibit executive dysfunction. A recent meta-analysis exploring executive functioning in antisocial populations including those with conduct disorder and ASPD concluded that antisocial individuals do display executive deficits in comparison to healthy controls (Morgan & Lilienfeld, 2000) providing further support for the notion of executive dysfunction in antisocial groups. Although findings of executive dysfunction have generally been consistent, it is noted that the meta-analysis, and a number of previous studies, included a wider antisocial population and did not focus specifically on ASPD, therefore making it difficult to identify the particular pattern of cognitive functioning in this specific group.

Neuropsychology and psychopathy

Studies with psychopathic individuals have been less consistent, with some research indicating that psychopaths exhibit deficits in tasks of executive function relative to controls (e.g. Gorenstein, 1982; Devonshire, Howard & Sellars, 1988), but other

studies finding no differences between psychopaths and controls (e.g. Hare, 1984; Kandel & Freed, 1989; Hart, Forth & Hare, 1990). There have also been suggestions of an attentional deficit in psychopathy (Harpur & Hare, 1990; Newman & Kosson, 1986), including problems with selective attention, although few empirical studies have been conducted in the area.

It has been suggested that the inconsistency in findings with psychopathic individuals is due to the different diagnostic criteria used to measure psychopathy in the studies, varied participant groups, lack of distinction between primary and secondary psychopaths, and differences in the type of control group used. Those using the Psychopathy Checklist Revised (PCL-R, Hare, 1991), which focuses on affective dysfunction as well as antisocial behaviour, suggest that psychopathic individuals do not display the same executive deficits that are indicated in ASPD (e.g. Hare, 1984). It may be that other measures of 'psychopathy' that focus more on antisocial behaviour and traits (e.g. California Socialization Scale; Gough, 1994), are in fact measuring characteristics indicative of the broader construct of antisocial personality, which is believed to be associated with greater executive dysfunction, rather than psychopathy, which has been associated with narrower frontal dysfunction, suggesting that the two disorders may have distinct neuropsychological profiles.

Neuroanatomical correlates

In terms of specific areas of the brain, deficits of the dorsolateral prefrontal cortex (DLPFC), ventromedial cortex (VMPFC), and orbitofrontal cortex (OFC) have been implicated in antisocial populations. It is suggested that the DLPFC is associated with executive functions such as planning, and monitoring and inhibiting responses (Smith & Jonides, 1999), and the VMPFC/OFC is associated with decision-making and learning to inhibit previously rewarded behaviour (Damasio, 1994; Dias, Robbins & Roberts, 1996; Rolls, 1997). Some studies have used neuropsychological tests believed to tap into certain brain areas in order to investigate whether deficits in these brain areas are associated with cognitive dysfunction in psychopathic or ASPD individuals. Studies of psychopathic individuals have indicated intact DLPFC functioning (Hare, 1984; Hoffman, Hall & Bartsch, 1987; Sutker & Allain, 1987;

Hart et al., 1990), and it is suggested that the disorder may be more associated with dysfunction in the VMPFC/OFC (e.g. Newman, Patterson & Kosson, 1987). ASPD has been linked to a broader range of executive deficits, implicating dysfunction of both DLPFC and VMPFC (see review by Morgan & Lilienfeld, 2000). However, few studies have specifically explored neuropsychological functioning in psychopathy/ASPD with reference to specific brain areas, indicating that more research is required in the area before firm conclusions can be reached.

Diagnostic problems

The diagnosis of personality disorder is a contentious issue. The current approaches to diagnosis of these disorders have been criticised for not being validated by empirical research and not relating to personality theory (Livesley, 2007; Tyrer et al., 2007). As discussed above, there is significant overlap between ASPD and psychopathy which are the focus of this review. However, it is noted that such overlap also exists between all personality disorders, with most individuals meeting criteria for more than one personality disorder, in addition to high levels of comorbidity with other disorders, including anxiety, depression, and psychosis. This therefore makes it difficult to ascertain whether neuropsychological differences are related to the specific disorder in question, another personality disorder, other mental health problems, or a combination of these. It has been suggested that current diagnostic measures do not capture some potentially important aspects of personality pathology, such as passive-aggressive or sadistic traits (Westen & Arkowitz-Westen, 1998), and that there is poor concurrent validity between measures that are considered to be reliable assessments of personality disorder, with individuals meeting criteria for disorder on one instrument, but not another. A further criticism of the current classification system is that it does not inform treatment selection (Sanderson & Clarkin, 2002; Livesley, 2007), which is often the purpose of assessment and diagnosis. There has been ongoing argument to move towards a dimensional, rather than categorical, approach in diagnosing personality disorder as this fits with empirical evidence, however, this has not yet been implemented by the classificatory systems.

The diagnosis of antisocial personality disorder and psychopathy are particularly controversial given some of the negative judgemental descriptors that are used to define the disorders. Descriptors such as ‘lack of remorse’, ‘callous’, ‘manipulative’ and ‘deceptive’ have negative connotations, could potentially lead to individuals misunderstanding the disorders and be associated with negative attitudes of staff towards patients with such disorders. In addition, such terms used in information provided to the general public can increase stigma attached to the disorders, leading to patients feeling ostracised by others. This may be exacerbated further by health services who have historically not considered personality disorder a valid mental illness, suggested those with the disorder are ‘untreatable’ and excluded them from services (National Institute for Mental Health, 2003).

Methodological considerations

There are a number of methodological limitations to the research that has been conducted in the area to date limiting ability to generalize the results and make meaningful comparisons between the studies, including the use of small sample sizes, lack of matched and healthy control groups, lack of accurate information on substance use and other confounding variables, different neuropsychological tests used across studies, and the use of different measures to determine diagnosis.

Aims of the current review

The aim of the current systematic review is to examine the literature to clarify which domains of neuropsychological functioning are impaired in offenders with psychopathy and ASPD, and whether the two disorders show distinct patterns of neuropsychological impairment.

Method

Inclusion and Exclusion Criteria

Studies were included in this review if they were cross-sectional, and participants in the study were recruited from a forensic sample. This includes clinical (mental health – inpatients or outpatients) samples, and prison or offender populations (including convicted offenders in the community). If offenders were recruited from the community, studies were only included if self-report information on convictions/offending behaviour were corroborated through official records (e.g. case files, criminal justice records). Participants must have been assessed for either antisocial personality disorder and/or psychopathy, and these represented a distinct group in the studies. Studies were only included if the ASPD/psychopathy group were compared to either healthy or psychiatric/clinical or non-psychopathic/ASPD control groups. Papers which included the use of standardised neuropsychological tests which are considered valid and reliable in measuring general intelligence, executive functions, attention, memory, and visuo-spatial functioning were included in the review. Studies were included if participants were male, or if the article included separate information on results from male participants. This review focused on adults and so studies with participants aged from 18 to 65 were included in the review, and studies from all countries including participants of all ethnicities were accepted as long as articles were available in English. Articles included were those published between 1993 and 2013.

Articles were excluded if participants were female. The decision was made to only include males in this review as the majority of individuals with a diagnosis of antisocial personality disorder or psychopathy are male, and the literature on female groups is not currently well-established. Additionally, some reports indicate neuropsychological differences between males and females in the general population (Lezak, Howieson & Loring, 2004). Studies of individuals from general community samples were not included as individuals from these samples may not represent the same level of severity of disorder and so may not be directly comparable to clinical and offender groups where higher rates of the disorders are reported. Studies were

also excluded if they did not have a distinct control group or did not present results that provided information on comparisons between the psychopathic/ASPD group and controls. If studies did not use standardised neuropsychological measures or created their own measures for use, they were excluded. Case studies were not included in this review. Dissertations, books and any articles not published in a peer-reviewed journal were also excluded.

Literature Search Strategy

A search was conducted to identify appropriate articles for the current review. The following electronic databases were searched in June 2013:

- PsycInfo
- Medline
- Embase
- Cinahl
- Web of Knowledge

The following search terms were used in each database: *neuropsychology*, *neurocognition*, *cognitive*, *antisocial personality*, *antisocial*, *personality disorder*, *psychopathy*, *psychopathic personality*, and *dangerous severe personality*.

The search resulted in 2733 hits across all databases. Articles were initially screened based on either the title or on reading the abstract indicating whether the paper was in an area relevant to this review. This screening resulted in 71 articles being initially accepted for further examination. Duplicates and articles not found/suitable were removed, leaving 26 articles. These articles were then examined to determine whether the studies met the inclusion criteria for this review. Six articles met the criteria for this review. Following the initial electronic searches, a number of relevant journals published between 2008 and 2013 were hand-searched for appropriate articles. Journals searched included the Journal of Neuropsychology, Journal of Personality Disorders, and Neuropsychology. No relevant (non-duplicate) articles were found through this search. Additionally, reference lists of articles that were accepted following initial screening were also searched, and this resulted in six articles being accepted for the final review (process summarised in Figure 1). As six

of the suitable articles were not detected by the original search terms, further searches were carried out including keywords from these six articles. These included: *attention*, *executive function*, *orbitofrontal* and *ventromedial*. No additional (non-duplicate) articles met criteria for the review through this search.

These searches resulted in twelve articles being accepted for the final review.

Articles that passed the initial screening but were then rejected are detailed in Appendix B. Reasons for rejection included lack of distinct control group, and non-clinical populations. Articles not available in English were rejected at the initial screening stage due to lack of feasibility to translate them.

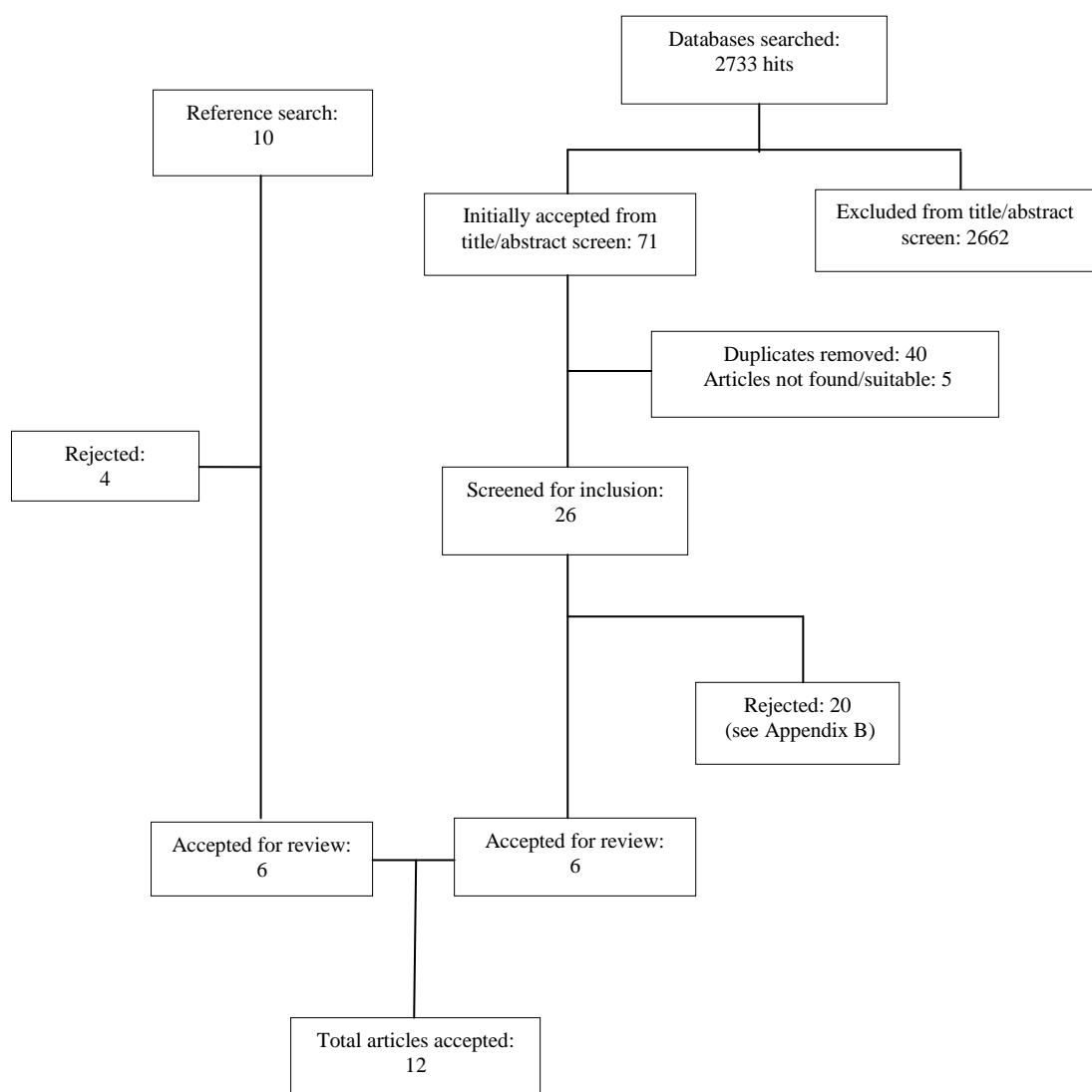


Figure 1. Flow chart detailing the search process

Quality Assessment of Included Studies

In order to assess methodological quality of the studies in this review, a quality rating scale was developed. The scale was adapted from the Scottish Intercollegiate Guidelines Network (SIGN, 2011) 50 guidelines in order to assess reliability and validity of studies. Factors taken into consideration when assessing quality included the sample selection and characteristics, measures used, statistical testing and application of findings, which resulted in ten criterion (see Appendix C). For each study, each of the quality criteria were rated and given a score of 3 (well-covered), 2 (adequate), 1 (poor) or 0 (not reported/not applicable). The highest score that could be assigned to a study was 30 points, and this was then calculated as a percentage. Studies scoring 80% or higher were considered 'very good' quality, those scoring 60-79% were considered 'good' quality, 50-59% were considered 'adequate', and scores of below 50% were categorised as 'low' quality. In order to enhance reliability of quality criteria ratings, four of the studies were scored on the quality criteria by a second rater. There was agreement on 92.5% of the ratings. Where there were differences in ratings, these were reviewed by the raters, and the differences were resolved through discussion.

Results

Twelve studies were included in the final review. The characteristics and key findings of these studies are summarised in Table 1.

Quality of included studies

Ratings of the studies on the ten quality criteria are presented in Table 2. The rating scale used offers a guide to the relative strengths and weaknesses of the studies, although is not an exact comparative measure. The ratings indicate that the majority (ten) of the studies are of overall comparable methodological quality (good), although did differ in their relative areas of strengths and weaknesses. The two methodologically weaker studies were those of Mol et al. (2009) and Dvorak-Bertsch et al. (2006). It is noted that none of the papers reported whether their studies were sufficiently powered. Independent examination by the author of the statistical tests used in relation to the sample sizes revealed that all studies were poor in this area, primarily due to small sample sizes and unequal numbers of participants across groups. The author also independently examined the psychometric properties, including validity and reliability of the measures used for both assessment of psychopathy/ASPD and neuropsychological functioning. This revealed that Dolan et al. (2002) and Dolan & Anderson (2002) were weakest in terms of diagnostic measures and methods used. Neuropsychological assessment was considered poor in three of the studies (Mol et al., 2009; Dvorak-Bertsch et al., 2007; Hiatt et al., 2004) based on the validity, reliability and range of measures used.

Participant recruitment

Of the twelve studies, one study explored neuropsychological functioning in a group of individuals with ASPD exclusively (Dolan & Park, 2002). In this study participants were screened for and did not meet criteria for any other personality disorders, but were not assessed for psychopathy. Ten studies included a psychopathy group (Dolan, Deakin, Roberts & Anderson, 2002; Blair et al., 2006; Dolan & Anderson, 2002; Mol, van den Bos & Derks, 2009; Ishikawa, Raine, Lencz, Bihle & Lacasse, 2001; Mitchell, Colledge, Leonard & Blair, 2002; Pham,

Vanderstukken, Philippot & Vanderlinden, 2003; Dvorak-Bertsch, Sadeh, Glass, Thornton & Newman, 2007; Hiatt, Schmitt & Newman, 2004; LaPierre, Braun & Hodgins, 1995). Two of these studies had also assessed for ASPD (Dolan et al., 2002; Dolan & Anderson, 2002), and some of the individuals, but not all, in the clinical groups in these two studies met criteria for ASPD as well as psychopathy. One of the studies had a sample that included individuals with both ASPD and psychopathy (Dolan, 2012), where all individuals in clinical groups met criteria for ASPD and were divided into groups according to level of psychopathy.

Participants were recruited from various settings, including secure hospitals, prisons, and the community (details are provided in Table 1). The study with the ASPD sample recruited participants from a high security psychiatric hospital. Those with psychopathy samples recruited from high and medium psychiatric hospitals, minimum and maximum security prisons, and included a community offender sample. The study that included both ASPD and psychopathic individuals recruited from a high security psychiatric hospital. Control groups across the studies included ancillary or nursing staff from institutions, prison inmates or forensic hospital patients who did not meet criteria for ASPD and/or psychopathy, and individuals from the community.

Nine of the studies provided detailed information on exclusion criteria for participants and screened for a number of confounding variables. Five of the studies screened for Axis I disorders, four screened for presence of psychosis or bipolar disorder, seven screened for drug and alcohol use, and seven for prescribed psychotropic medication. Head injury or previous loss of consciousness was taken into consideration in five of the studies, three screened for neurological problems, two for organic brain pathology, and two for neurosurgery. Four of the studies excluded individuals with borderline intellectual ability or a learning disability, and six screened for level of education. It is noted that the Blair et al. (2006) and Pham et al. (2003) studies were poor in their control of confounding variables.

Table 1. Summary of included studies

Study	Participant group	Sample size	Personality assessment measure	Neuropsychological tests	Key Findings
Dolan, Deakin, Roberts & Anderson (2002) UK	Psychopaths PD and staff controls High secure psychiatric hospital	75	SHAPS	<i>General intelligence</i> NART <i>Executive functions</i> WCST Stroop test CET PT TMT A-B Verbal fluency test <i>Memory</i> Logical & visual reproduction subtests of WMS Word recognition test of RMT	SHAPS psychopaths scored significantly lower on IQ, composite executive function scores and composite memory function scores. When controlling for IQ, executive differences remained but memory differences were no longer significant
Dolan & Park (2002) UK	ASPD Staff controls High secure psychiatric hospital	49	DSM-IV criteria - SCID	<i>General intelligence</i> NART <i>Executive functions</i> Tower of London ID/ED Go/Nogo <i>Memory</i> MTS & DMTS	ASPD offenders performed significantly worse than controls on some aspects of ToL, ED, Go/NoGo and DMTS
Dolan (2012) UK	All ASPD and assessed for level of psychopathy Staff controls High and medium secure psychiatric hospitals, and prisons	145	ASPD – DSM SCID II Psychopathy – PCL:SV Level of psychopathy cutoff PCL:SV scores: High - >19 Medium 16-19 Low <15	<i>General intelligence</i> NART <i>Executive functions</i> Stockings of Cambridge ID/ED Go/NoGo	Low psychopathy ASPD offenders performance on some aspects of SoC, ED, and Go/NoGo was significantly poorer than that of controls All ASPD offenders demonstrated deficits on the ED task Medium psychopaths performed poorly on ED
Blair, Newman, Mitchell, Richell, Leonard, Morton &	Psychopaths Offender controls	55	PCL-R	<i>General intelligence</i> NART	Psychopaths made significantly more errors on

Blair (2006) UK	Prisons		Psychopathy cutoff 30 Controls ≤ 19	Raven's Advanced Matrix <i>Executive functions</i> OA/SA Number Stroop – counting and reading	the OA task, and demonstrated less interference on the Stroop reading task
Dolan & Anderson (2002) UK	Psychopaths PD and staff controls High secure psychiatric hospital	87	SHAPS	<i>General intelligence</i> NART WAIS-R <i>Executive functions</i> WCST Stroop COWAT TMT A-B CET PT <i>Memory</i> Logical memory Visual reproduction (from WMS-R) Recognition Memory Test	Psychopaths had significantly lower IQ, and performed worse on WCST, Stroop, COWAT, Proverbs Interpretation, Logical memory and the face recognition component of the RMT. After controlling for IQ, differences on CET, Proverbs Interpretation and logical memory remained
Mol, van den Bos & Derks (2009) The Netherlands	Psychopaths Offender controls Forensic psychiatric clinic	53	PCL-R Psychopathy group cutoff 26 Controls < 26	<i>Executive functions</i> WCST	No significant differences between groups
Ishikawa, Raine, Lencz, Bihle & Lacasse (2001) USA	Psychopaths Community controls Temporary employment agencies in the community	55	PCL-R Psychopathy group scored in top third (24.2 and higher) – split into convicted and unconvicted groups Controls scored in bottom third	<i>General intelligence</i> WAIS-R subtests (vocabulary, arithmetic, digit span, block design, digit symbol) <i>Executive function</i> WCST <i>Memory</i> Logical Memory and Visual Reproduction from WMS-III	No significant differences between convicted psychopaths and controls. Unconvicted psychopaths demonstrated significantly better executive functioning than the other groups
Mitchell, Colledge, Leonard & Blair (2002) UK	Psychopaths Offender controls Prisons	51	PCL-R Psychopathy group cutoff 30 Controls < 20	<i>General intelligence</i> Raven's advanced matrix <i>Executive functions</i> ID/ED Bechara gambling task	Psychopaths performed significantly worse on the gambling task and some aspects of ID/ED

Pham, Vanderstukken, Philippot & Vanderlinden (2003) <i>Belgium</i>	Psychopaths Offender controls Prison	36	PCL-R Psychopathy group cutoff 25 Controls < 15	<i>General intelligence</i> WAIS <i>Attention</i> D-II cancellation <i>Executive functions</i> Porteus Maze Modified WCST Stroop colour-word TMT A- B ToL	Psychopaths performed significantly worse than controls on D-II and ToL
Dvorak-Bertsch, Sadeh, Glass, Thornton & Newman (2007) <i>USA</i>	Psychopaths Offender controls Prison	128	PCL-R Psychopathy group cutoff 30 Controls < 20	<i>General intelligence</i> Shipley Institute of Living Scale <i>Attention</i> Stroop colour word	No significant differences between psychopaths and non-psychopaths
Hiatt, Schmitt & Newman (2004) <i>USA</i>	Psychopaths Offender controls Minimum and maximum security prisons	207 (across 3 experiments)	PCL-R Psychopathy group cutoff 30 Controls < 20	<i>General intelligence</i> SILS <i>Attention</i> Colour-word Stroop Picture word Stroop Spatial colour word stroop	Psychopaths demonstrated significantly less interference on the picture word and spatial colour word Stroop
LaPierre, Braun & Hodgins (1995) <i>Canada</i>	Psychopaths Offender controls Medium secure prisons	60	PCL-R Psychopathy group cutoff 30 Controls < 20	<i>Executive functions</i> Go/NoGo Porteus Maze WCST Similarities from Ottawa-Wechsler Intelligence Scale <i>Visuospatial</i> Mental Rotation Task	On the Go/NoGo task, psychopaths performed significantly worse than controls

NART – National Adult Reading Test; WCST (Wisconsin Card Sorting Test); CET – Cognitive Estimations Test; PT – Proverbs Interpretation Test; TMT – Trail Making Test; WMS(-R) – Wechsler Memory Scale (Revised); RMT – Recognition Memory Test; ID/ED – Intradimensional/Extradimensional Shift; MTS – Matching to Sample; DMTS – Delayed Matching to Sample; OA/SA – Object Alternation/Spatial Alternation; WAIS-R – Wechsler Adult Intelligence Scale-Revised; COWAT – Controlled Oral Word Association Test; SILS – Shipley Institute of Living Scale

SHAPS – Special Hospital Assessment of Personality and Socialization; DSM – Diagnostic and Statistical Manual of Mental Disorders; SCID – Structured Clinical Interview for DSM; PCL:SV – Psychopathy Checklist: Screening Version; PCL:R – Psychopathy Checklist: Revised

Table 2. *Quality ratings of included studies*

	Focused question	Clear inclusion / exclusion criteria	Participant information	Matched controls	Allocation measures	Outcome measures	Statistical analysis	Power	Confounds	Generalisability	Overall rating
Dolan et al. (2002)	Adequate	Well-covered	Adequate	Adequate	Poor	Adequate	Well-covered	Not reported	Well-covered	Adequate	Good
Dolan & Park (2002)	Adequate	Well-covered	Adequate	Adequate	Well-covered	Adequate	Well-covered	Not reported	Well-covered	Adequate	Good
Dolan (2012)	Adequate	Adequate	Adequate	Adequate	Well-covered	Adequate	Well-covered	Not reported	Well-covered	Adequate	Good
Blair et al. (2006)	Adequate	Adequate	Poor	Adequate	Well-covered	Adequate	Well-covered	Not reported	Poor	Adequate	Good
Dolan & Anderson (2002)	Adequate	Well-covered	Adequate	Adequate	Poor	Adequate	Well-covered	Not reported	Well-covered	Adequate	Good
Mol et al. (2009)	Adequate	Poor	Poor	Adequate	Well-covered	Poor	Well-covered	Not reported	Adequate	Poor	Adequate
Ishikawa et al. (2001)	Well-covered	Well-covered	Well-covered	Adequate	Well-covered	Adequate	Well-covered	Not reported	Adequate	Adequate	Good
Mitchell et al. (2002)	Adequate	Adequate	Poor	Adequate	Well-covered	Adequate	Adequate	Not reported	Adequate	Adequate	Good
Pham et al. (2003)	Adequate	Adequate	Poor	Adequate	Well-covered	Adequate	Well-covered	Not reported	Poor	Adequate	Good
Dvorak-Bertsch et al. (2007)	Adequate	Well-covered	Poor	Adequate	Well-covered	Poor	Adequate	Not reported	Adequate	Poor	Adequate
Hiatt et al. (2004)	Adequate	Well-covered	Poor	Adequate	Well-covered	Poor	Well-covered	Not reported	Adequate	Adequate	Good
LaPierre et al. (1995)	Adequate	Well-covered	Well-covered	Adequate	Well-covered	Adequate	Adequate	Not reported	Adequate	Adequate	Good

Measures of Psychopathy and Antisocial Personality Disorder

In the twelve studies included in this review, different measures were used to assess psychopathy and ASPD in the samples. The most commonly used measure was the Psychopathy Checklist-Revised (PCL-R; Hare, 1991, 2003) to assess psychopathy in eight of the studies. The PCL-R is generally considered to be the gold standard measure of psychopathy, has been widely validated, and is the most commonly used measure of psychopathy (Hall, Benning & Patrick, 2004). The PCL-R is a 20-item checklist that is rated on the basis of semi-structured interview and file review, although it is suggested that it can be scored reliably on file review alone (Wong, 1988; Hare, 1991). The measure assesses two dimensions of psychopathy: interpersonal/affective and antisocial behaviour. Scores range from 0 to 40, with the cut-off for UK and Europe being 25, and a cut-off of 30 in North America (Harris, Rice & Quinsey, 1994; Hare & Neumann, 2006). In the eight studies that used the PCL-R and were included in this review, two UK studies used a cut-off score of 30 for clinical groups (below 19 and 20 for controls), two European studies used a cut-off score of 25 and 26 (scores below 15 and 26 for controls). Two USA studies used 30 as a cut-off, one USA study used 24.2 (scores of 20 and below or those scoring in the bottom third included in control groups), and one Canadian study used 30 as the clinical cut-off (score of 20 or less for controls).

The Psychopathy Checklist-Screening Version (PCL-SV; Hart, Cox & Hare, 1995) is a 12-item version of the PCL-R which was designed for research purposes. The PCL-SV assesses the same dimensions as the original measure and scores range from 0 to 24. It is suggested that a cut-off of 18 (based on a North American sample) is used on this measure for research purposes. The PCL-SV correlates highly with the PCL-R and is a well-validated measure (Hare & Neumann, 2006). One study in the current review used the PCL-SV as a measure of psychopathy (Dolan, 2012). Participants in the study were assigned to high, medium and low psychopathy groups based on PCL-SV scores of 19 or more, 16-19, and 15 or less, respectively, in a group of participants who all met the criteria for antisocial personality disorder.

The Special Hospital Assessment of Personality and Socialization (SHAPS; Blackburn, 1982) is a ten-scale self-report inventory designed to measure personality characteristics relevant to forensic populations, and correlates moderately with the PCL-R (Blackburn, 1999). The measure is made up of items taken from other measures (including the Minnesota Multiphasic Personality Inventory and the Buss-Durkee Hostility Inventory). The inventory consists of two higher order scales of Belligerence (characterized by hostility and impulsivity), and Withdrawal (related to sociability and anxiety). The SHAPS was used as a measure of psychopathy in two of the studies included in this review (Dolan et al., 2002; Dolan & Anderson, 2002). The studies categorised those scoring highly on the Belligerence factor as ‘psychopaths’, with ‘non-psychopaths’ scoring low on belligerence.

In order to assess ASPD, four studies used the Diagnostic and Statistical Manual of Mental Disorders (DSM; American Psychiatric Association, 1987, 1994) criteria. All studies used the Structured Clinical Interview for DSM Axis II Disorders (SCID-II) to assess presence of the disorder. Two studies used the SCID-II (Dolan et al., 2002; Dolan & Anderson, 2002) relating to the DSM-III-R to identify the presence of ASPD in a psychopathic group, and two related to the DSM-IV (Dolan & Park, 2002; Dolan, 2012) to assign ASPD patients to the main clinical group.

Neuropsychological Assessment

A number of different neuropsychological tests were used to measure various cognitive domains across studies.

General/Premorbid Intellectual Ability

Nine of the studies used tests to measure general and/or premorbid intelligence (two measured both). The National Adult Reading Test (NART; Nelson, 1982) was used to assess premorbid intelligence, and the Wechsler Adult Intelligence Scale – Revised (WAIS-R; Wechsler, 1981), Raven’s Advanced Matrix (Raven, 1965) and Shipley Institute of Living Scale (SILS; Zachary, 1986) were used to assess general intellectual ability.

Executive functions

Eleven of the studies examined performance on measures of executive function. The tests used across the studies included the Wisconsin Card Sorting Test (WCST; Heaton, 1981; Heaton, Chelune, Talley, Kay & Curtis, 1993; Nelson, 1976), Stroop Test - including colour, number and spatial versions (Trenerry, Crosson, Boe & Leber, 1989), Trail Making Test (TMT; Reitan, 1958) Parts A and B, Cognitive Estimations Test (CET; Shallice & Evans, 1978), Proverbs Interpretation Test (PT; Gorham, 1956), Controlled Oral Word Association Test (COWAT; Benton & Hamsher, 1989), Tower of London/Stockings of Cambridge (ToL/SoC; Shallice, 1982; Fray, Robbins & Sahakian, 1997), Intradimensional/ Extradimensional Shift (IE/ED; Fray et al., 1997), Go/NoGo, Object Alternation, Spatial Alternation, Bechara Gambling Task (Bechara, Damasio, Damasio & Anderson, 1994), Porteus Maze (Porteus, 1965), and the Similarities subtest from Ottawa-Wechsler Intelligence Scale (Chagnon, 1953). Although the TMT is also a measure of attention, in the three studies that used the test, the purpose was to measure executive function (or the score was included in the executive function composite score) as Part B of the test measures mental flexibility in addition to measuring attentional ability. The Stroop is also considered a measure of attention, as well as assessing cognitive control and the ability to inhibit a response. In four of the six studies that utilised the Stroop, the test was used as a measure of executive function.

Attention

Attention was explored in three of the studies. The Stroop test was used to measure attention exclusively in two studies, and the D-II cancellation test (Brickencamp, 1981) was used in another study.

Memory

Four of the studies measured memory. The tests used included Logical and Visual Reproduction subtests from the Wechsler Memory Scale (WMS; Wechsler, 1987), Word Recognition subtest from the Recognition Memory Test (RMT; Warrington, 1984), Matching to Sample/Delayed Matching to Sample (MTS/DMTS; Fray et al., 1997), and the RMT.

Visuospatial Ability

One study measured visuospatial ability through the use of the Mental Rotation Task (MRT).

Neuropsychological Test Performance

General/Premorbid Intellectual Ability

Of the nine studies which assessed general intellectual functioning, two used the WAIS-R. Dolan and Anderson (2002) administered the WAIS-III to a sample of SHAPS defined psychopaths, personality disordered (PD) offenders (none of whom had ASPD), and staff controls. They found that psychopathic individuals scored significantly lower on the WAIS-R full-scale and verbal subscale scores in comparison to the PD group and staff controls. Psychopaths' scores on the performance subscale was lower than that of controls, however, this difference was not significant. No significant difference was found in WAIS-R scores between primary and secondary psychopaths.

The Ishikawa et al. (2001) study used the following subtests from the WAIS-R in order to estimate general intellectual ability in a community psychopath sample and community controls: vocabulary, arithmetic, digit span, block design, and digit symbol-coding. They found no significant differences between groups in estimated full scale IQ scores. Pham et al. (2003) found no differences in IQ as measured by the WAIS between psychopathic and non-psychopathic offenders.

The NART was the most widely used measure to estimate IQ in the studies reviewed. Dolan et al. (2002) found that SHAPS psychopaths scored significantly lower on the NART compared to PD offenders and staff controls. Dolan and Park (2002) found no significant differences in NART IQ scores between ASPD offenders and staff controls, and Dolan (2012) found no differences between ASPD offenders with high, low or medium levels of psychopathy, or between these groups and staff controls.

Blair et al. (2006) found no significant differences in NART scores between psychopathic and non-psychopathic offenders. In the Dolan and Anderson (2002) study, the NART was administered to SHAPS defined psychopaths, PD offenders, and staff controls. NART scores were found to be significantly lower for the psychopathic group compared to the PD group and staff controls.

Blair et al. (2006) and Mitchell et al. (2002) found no significant differences in Raven's Advanced Matrix scores between psychopathic and non-psychopathic offenders. Hiatt et al. (2004) found that psychopaths scored significantly lower than offender controls on SILS IQ scores in one of their experiments, but found no significant differences between psychopathic and non-psychopathic groups in the two other experiments reported in their paper. Dvorak-Bertsch et al. (2006) administered the SILS to all participants to ensure all those who took part in the study scored above 70 on the measure, but they did not make comparisons of SILS IQ scores between the groups in their study.

Overall, across the studies, the majority did not find any significant differences in estimated IQ scores between psychopathic/ASPD groups and controls. Two studies, however, indicated that SHAPS defined psychopaths differed significantly in IQ scores when compared to staff controls. As the majority of studies did not find a difference, it may be that the difference in the Dolan et al. (2002) and Dolan and Anderson (2002) studies was due to the measure of psychopathy used, rather than reflecting a true difference in general intellectual ability in this population.

Executive functions

Dolan et al. (2002) found that SHAPS psychopaths had significantly lower composite executive functioning scores compared to PD offenders and staff controls. The tests included in their executive function battery were the WCST, Stroop, TMT, CET, PT, and COWAT. Individual test scores were not reported in their paper. Dolan and Anderson (2002) found the same result as above when they calculated composite executive function scores for their study. They also provided details of

comparisons between individual test scores which are reported in the relevant sections below. Ishikawa et al. (2001) presented composite executive function scores in their study. They did not find any significant differences between convicted community psychopaths and community controls. The WCST was used as the sole measure of executive functioning in their study.

Based on composite scores, the above studies indicate that SHAPS psychopaths performed poorer on measures of executive function compared to controls. PCL defined psychopaths did not display the same difficulties in executive function task performance.

Cognitive Flexibility

Dolan and Anderson (2002) found that SHAPs psychopaths made significantly more errors than staff controls on the WCST. This difference did not remain significant when controlling for IQ in their analysis. Mol et al. (2009), Pham et al. (2003), and LaPierre et al. (1995) found no differences in WCST performance between psychopathic and non-psychopathic offenders, and Ishikawa et al. (2001) found no differences between psychopaths and community controls. Mol et al. (2009) was the methodologically weakest study using the WCST, however, it is noted that the results from this study were consistent with the methodologically stronger studies.

On the number Stroop task, Blair et al. (2006) found that psychopathic offenders were slower to respond on the counting and reading trials compared to non-psychopathic offenders. The psychopathy group also demonstrated significantly less interference on the number Stroop reading task. PCL-R factor 2 scores and total PCL-R scores were significantly related to interference on Stroop tasks combined and the Stroop reading task. Dolan and Anderson (2002) found that SHAPS psychopaths performed significantly worse on a colour word Stroop task compared to PD offenders and staff controls, although significance did not remain when controlling for IQ. Pham et al. (2003) found that psychopathic offenders made more overall errors on the Stroop task compared to non-psychopathic offenders, but when interference error was examined separately, the difference was not significant. Dolan

and Anderson (2002) found no significant difference in performance on the TMT (A&B) between SHAPS psychopaths, PD offenders and staff controls. No differences were found on the TMT between psychopathic and non-psychopathic offenders in the Pham et al. (2003) study. It is noted that these studies differed in their control of confounding variables, with the Dolan and Anderson (2002) study being stronger in this area. However, the Blair et al. (2006) and Pham et al. (2003) studies used a more reliable and valid measure of psychopathy, and so were methodologically stronger in this area.

In the Dolan and Park (2002) study, individuals with ASPD completed significantly less stages of the IE/ED task successfully compared to controls. They failed more tasks at the ED shift stage, and made more errors at the ED shift and reversal stages. Dolan (2012) found that significantly more controls reached criterion at the ED shift and reversal stages compared to low, medium and high psychopathy ASPD offenders. Low psychopathy ASPD individuals completed significantly less stages than controls, and all ASPD groups made more errors at the ED shift and reversal stages. There was no significant relationship between IE/ED task performance and psychopathy facet scores. Mitchell et al. (2002) found that psychopathic offenders made significantly more errors on the IE/ED task compared to non-psychopathic offenders, and demonstrated significantly worse performance on the response reversal components of the task. Psychopathic offenders in the Blair et al. (2006) study made significantly more errors on the OA task compared to non-psychopathic offenders. No significant differences were found on the SA task. PCL-R factor 1 and total PCL-R scores were significantly related to OA task performance. These studies were overall of a similar quality, however, it is noted that the Blair et al. (2006) study was poorer in its control of confounding variables compared to the other studies.

Planning

Dolan and Park (2002) found significant differences between individuals with ASPD and staff controls on the ToL task. The ASPD groups solved fewer of the problems within the minimum number of moves, made more errors on more difficult problems, and had longer thinking times as task difficulty increased. They were, however, able

to solve as many problems as the control group. Pham et al. (2003) found that psychopathic offenders had a higher number of excess moves and took longer to complete tasks than non-psychopathic offenders on the ToL task. On the SoC task, Dolan (2012) found that low psychopathy ASPD individuals solved fewer problems within the minimum number of moves, made more errors on more difficult tasks, and had higher excess moves on more difficult problems compared to staff controls. Low, medium and high psychopathy ASPD individuals solved significantly fewer of the more difficult problems within the maximum number of moves allowed compared to controls. No relationship was found between psychopathy facet scores and SoC task performance. In the Pham et al. (2003) and LaPierre et al. (1995) studies, psychopathic offenders made more qualitative errors on the Porteus Maze task compared to non-psychopathic offenders. They did not differ on number of quantitative errors made.

Concept Formation

Dolan and Anderson (2002) found that SHAPS psychopaths performed significantly worse on the CET compared to PD offenders and staff controls (this remained when controlling for IQ). SHAPS psychopaths were found to perform significantly worse than PD offenders and staff controls on the Proverbs Interpretation task in the Dolan and Anderson (2002) study. When controlling for IQ, the difference remained significant. LaPierre et al. (1995) found no significant differences between psychopathic and non-psychopathic offenders on the Similarities subtest. It is noted that the LaPierre et al. (1995) study used a more valid and reliable measure of psychopathy than the Dolan and Anderson (2002) study, which may account for the difference in performance on concept formation tasks between the studies.

Response Inhibition

On the Go/NoGo task, Dolan and Park (2002) found that the ASPD group made significantly more errors than controls. Dolan (2012) found that medium psychopathy ASPD individuals made more errors than staff controls. LaPierre et al. (1995) observed that psychopathic offenders made significantly more commission errors on the Go/NoGo compared to non-psychopathic offenders. Psychopathic

offenders made significantly more high risk moves on the Bechara Gambling task compared to non-psychopathic offenders in the Mitchell et al. (2002) study.

Verbal Fluency

Dolan and Anderson (2002) found SHAPS psychopaths performed significantly worse on a verbal fluency task compared to staff controls, but did not differ significantly compared to non-psychopathic PD offenders. The results did not remain significant when controlling for IQ.

Overall, the studies indicate that psychopathic and ASPD individuals did display poorer performance on some tasks of executive function compared to controls. SHAPS psychopaths demonstrated difficulties on tasks measuring cognitive flexibility, concept formation, and verbal fluency. PCL defined psychopaths exhibited poorer performance on some tasks of cognitive flexibility, planning and response inhibition. ASPD individuals exhibited some difficulty on tasks of cognitive flexibility, planning, and response inhibition.

Attention

Pham et al. (2003) found that psychopathic offenders performed significantly worse on the D-II cancellation task compared to non-psychopathic offenders. On the colour word Stroop, Dvorak-Bertsch et al. (2006) and Hiatt et al. (2004) found no significant differences on task performance between psychopathic and non-psychopathic offenders. However, on a picture-word Stroop, Hiatt et al. (2004) found that low-anxious psychopaths were less sensitive to interference than low anxious non-psychopaths. High-anxious non-psychopaths showed less interference effects than high anxious psychopaths. They also found that on a spatially separated colour-word Stroop task, psychopathic individuals were less sensitive to interference compared to the non-psychopathic group. It is noted that the Dvorak-Bertsch et al. (2006) study was overall methodologically weaker than the Hiatt et al. (2004) study.

Overall, these findings indicate that although psychopathic individuals displayed some difficulties on tasks of attention, on some tasks of attention they demonstrate reduced interference in relation to controls.

Memory

Memory was assessed in the Dolan et al. (2002) study with the logical and visual reproduction subtests of the WMS, and the word recognition test of the RMT. A total composite memory score was used to assess differences between groups, and they found that SHAPS psychopaths' composite memory scores were significantly lower than staff controls, however, the difference was not significant when controlling for IQ. There were no significant differences in memory scores between the psychopathy and PD groups. Individual test scores were not reported in this study.

Logical memory, visual reproduction and the RMT in the Dolan & Anderson (2002) study indicated that SHAPS psychopaths scored significantly lower than staff controls on logical memory (immediate and delayed recall), visual reproduction (immediate recall) and on the RMT (recognition memory for faces). After controlling for IQ significant differences remained on logical memory immediate recall only. No differences were found between the psychopathy and PD groups. Composite memory function scores were also calculated for the groups and revealed that psychopaths scored significantly lower than controls. There was no difference between the psychopathy and PD groups. When controlling for IQ, the difference in memory function composite scores did not remain significant. No significant differences were found in individual test or composite scores between primary and secondary psychopaths.

Ishikawa et al. (2001) also administered the logical memory and visual reproduction subtests and found no significant difference in composite memory scores between psychopaths and controls (their analysis controlled for IQ, socioeconomic status, and race). The Ishikawa et al. used a more reliable and valid measure of psychopathy

than the other two studies, although overall, all three studies were considered to be of 'good' methodological quality. Dolan & Park (2002) assessed memory with MTS/DMTS. They found that ASPD offenders had a significantly lower percentage of correct responses at short and medium delays on the DMTS compared to offender controls. Analysis revealed that the ASPD group did not necessarily perform worse as delay increased, as they performed comparably to controls on the long delay condition.

In summary, the results indicate that SHAPS psychopaths and ASPD offenders display some memory difficulties in relation to controls. PCL psychopaths did not demonstrate any memory dysfunction.

Visuospatial Ability

LaPierre et al. (1995) found no significant differences in MRT scores between psychopathic and non-psychopathic offenders. This suggests that psychopathic offenders do not exhibit deficits in visuospatial ability in relation to non-psychopathic offenders. This was the only study assessing visuospatial ability, making it difficult to reach any firm conclusions about this area of functioning in psychopaths. The study had several limitations, including a small sample size, and only using one measure of visuospatial ability.

Overall, the studies indicate that individuals with psychopathy and/or ASPD do display some differences in neuropsychological function when compared to controls, including executive functions, attention, and memory.

Discussion

This review explored the neuropsychological functioning of individuals with psychopathy or ASPD in forensic samples in order to explore whether individuals with these disorders display a distinct neuropsychological profile. This review explored wider neuropsychological functioning than previous reviews that had focused solely on executive functioning (e.g. Morgan & Lilienfeld, 2000), however focused on a more specific group of individuals from forensic samples meeting diagnostic criteria for psychopathy and ASPD. It was hoped that focusing on a specific group would help to highlight specific patterns of cognitive functioning, as the research to date has reported mixed and inconsistent results.

General Findings

The results of this review suggest that psychopathic/ASPD offenders differ from non-psychopathic/ASPD controls in areas of executive functioning, attention and memory. Executive deficits were apparent in studies that used measures of cognitive flexibility, planning, concept formation, verbal fluency and response inhibition. Psychopathic and ASPD offenders generally did not differ from controls on measures of general intellectual ability and visuospatial abilities, however, it is indicated that general intellectual ability is an important confounding variable when considering performance on neuropsychological tasks.

Neuropsychological functioning in Psychopathy

The finding that psychopathic individuals' performance on the WCST did not differ significantly from controls suggests lack of DLPFC deficit among psychopathic offenders. The finding of comparable performance between psychopaths and controls on the WCST is consistent with previous studies of psychopathic populations (e.g. Hare, 1991), and lends some support to the notion that psychopaths display specific rather than global executive deficits. Poorer performance of psychopaths on response reversal aspects of the ID/ED task suggests that they struggle to modify responses when reward contingency has been reversed. This task performance is suggested to be consistent with OFC dysfunction. The finding that psychopaths performed worse

than controls on the OA task does provide some further support of deficit in cognitive flexibility associated with the OFC. However, it is noted that these patterns of performance were not found in all studies that administered the ID/ED and task performance of psychopaths on the TMT were not indicative of cognitive flexibility deficits.

Individuals with psychopathy performed poorly on some, but not all aspects of tasks relating to planning ability. The majority of studies did not find a difference between psychopaths and controls across different planning tasks, indicating that psychopaths do not exhibit a global planning deficit. This finding of mostly intact planning ability fits with the clinical conceptualisation of psychopathy as a disorder in which an individual engages in premeditated and planned behaviour (Hare, 1998), and so a planning deficit would not be expected. This finding also further supports the notion of intact DLPFC functioning in psychopaths.

Some studies suggested that psychopaths exhibited difficulties inhibiting responses, and had a propensity to be less risk averse in order to gain higher rewards, even if this is associated with greater punishment. Again, this fits with clinical descriptions of psychopathic individuals disregarding consequences of behaviour and focusing on personal gain. In terms of neuroanatomical functioning, this finding suggests OFC dysfunction. However, this finding was not consistent across all studies.

There were mixed results regarding psychopaths' performance on tasks of concept formation. It may be that conflicting findings in this area was due to the measure of psychopathy used, as the studies indicated SHAPS psychopaths exhibited difficulties in concept formation, but this was not found in PCL-R psychopaths. The findings of the studies did not suggest that difficulties in verbal fluency were characteristic of psychopathy, however, only two studies included measures of verbal fluency, one of which reported these out with a composite executive functioning score.

Psychopaths' performance on Stroop tasks was mixed, with some studies finding performance comparable to controls, and others finding psychopaths showed reduced

interference. It is suggested that information that is peripheral to the focus of attention, or is spatially separated, is not fully processed by individuals with psychopathy, or that interference levels are lower because the assumption of reading being more automatic than counting or colour/picture naming is not as applicable to psychopathic individuals as it is to the general population. However, inconsistent results across the studies make it difficult to draw firm conclusions regarding attentional deficits.

In this review, psychopathic individuals were not found to display dysfunction in memory or visuospatial tasks relative to controls. However, it is noted that few studies included measures of memory, and only one study included a measure of visuospatial ability, and so no conclusions can be reliably based on such a small data set.

Neuropsychological functioning in ASPD

Test performance of ASPD individuals indicated that their performance on tasks of executive function was poorer than that of controls. Their performance on ID/ED suggests that they are able to transfer a rule from one stimulus of one dimension (e.g. shape) to another stimulus of the same dimension (ID), but that they experience difficulties transferring the rule to a previously irrelevant dimension (ED). This suggests that they experience some dysfunction in cognitive flexibility. As the ED aspect of the task requires individuals to inhibit a response that was previously rewarded, it also indicates some difficulties in response inhibition. Poorer performance of ASPD offenders on the Go/NoGo task, provides further support for response inhibition difficulties. These findings suggest OFC dysfunction in ASPD offenders.

The finding that ASPD individuals demonstrate difficulty on the ToL/SoC indicates they may experience some problems in planning ability. The specific performance pattern of ASPD offenders on the task indicates that they might initially act in an impulsive manner, but this is not their general reaction style. Planning difficulties

indicate ASPD individuals may exhibit DLPFC dysfunction. ASPD individuals also displayed some difficulties on memory tasks, suggesting poorer visual memory relative to controls. However, as ASPD groups were only investigated in two of the studies, it is not possible to make firm conclusions regarding neuropsychological functioning in ASPD, or to generalise these findings to a wider ASPD offender group. Further research is required in the area.

Strengths and limitations of the studies

Differences in findings across studies may be explained by different populations being studied (prisoners, forensic psychiatric patients, community offenders), inconsistency in diagnostic criteria and diagnostic assessment measures used, the use of different neuropsychological tests, and variation in confounding variables taken into account. Although only forensic populations were included in this review, it is noted that this is not a heterogeneous population. Aside from being recruited from different types of institutions, there may have been other variations between and within studies relating to factors such as comorbid illness, trauma history, and personality factors. It is also noted that there may have been some overlap in the participants in two of the studies (Dolan et al., 2002; Dolan & Anderson, 2002) as the author commented that they had recruited from the same pool of participants for the two studies.

The majority of studies including psychopathic individuals used the PCL-R to assess for psychopathy, which is considered the best measure of this personality construct. However, it is noted that all studies did not use the same cut-off, and did not always use the suggested cut-off score for their country. It is likely that across the studies, the psychopathy groups differed in terms of level of psychopathy. Other studies that used the SHAPS classified their participants as 'psychopaths', but it is unlikely that this is measuring the same construct as the PCL assessments. The PCL-R is a lengthy assessment relying on in depth interviews with individuals alongside thorough file review. It is unlikely that a brief self-report measure such as the SHAPS can accurately identify a complex construct such as psychopathy. It may be that the

SHAPS has more overlap with ASPD rather than psychopathy, as the focus is more on an impulsive behavioural style, rather than affective components, which are considered important in accurately measuring psychopathy.

This review included studies that used neuropsychological tests that had reasonable levels of reliability and validity. However, one limitation of the review is that the same tests were not used in all studies and so it is difficult to make direct comparisons. In this review, the tests were grouped to reflect various domains of cognitive functioning. Although the tests were grouped according to relevant literature available, it is likely that the measures tap into more than one domain of cognitive functioning. This is also important to consider when discussing test results in relation to areas of the brain. Some of the studies reviewed made reference to tests indicating function in certain areas of the brain. While there is evidence from imaging studies highlighting the areas of the brain which are activated during certain tests, it is pertinent to be cautious when using non-imaging studies to draw conclusions about dysfunction in specific brain areas as, given the complexity of neural networks in the brain, it is likely that tests activate numerous neural networks across different areas of the brain. In addition, this review did not include studies assessing a wider range of neuropsychological functions, such as facial affect recognition and emotional information processing.

There are a number of important variables that should be taken into consideration in neuropsychological studies. Substance misuse is of particular importance when considering a forensic population, and was controlled for in most of the studies included in this review. As high rates of individuals with ASPD and psychopathy use substances and are considered to be at higher risk of developing substance dependence (Hesselbrock, Meyer & Hesselbrock, 1992), it is not only important to obtain a full and accurate history of substance misuse, but also to take into account the impact of this on neuropsychological functioning. Individuals may be 'substance free' at the time of assessment, but it may be that previous periods of substance use have impacted cognitive functioning and some of the observed deficits may be associated with this, rather than being purely associated with ASPD or psychopathy.

For instance, individuals with excessive alcohol intake display a number of executive deficits, including problems with abstract reasoning, verbal fluency, set-shifting, and cognitive flexibility (Giancola & Moss, 1998), which overlap with deficits displayed by those with ASPD and psychopathy.

Another important confounding variable in studying neuropsychological functioning is head injuries. Some of the studies included in this review excluded participants who had a history of head trauma (Dolan et al., 2002; Dolan & Park, 2002; Dolan, 2012; Dolan & Anderson, 2002), or matched groups on this variable (Ishikawa et al., 2001). This may be a particularly difficult variable to measure in antisocial or forensic populations as they may have been involved in antisocial or violent acts that may result in head injuries but not be officially recorded or accurately reported in interviews. In addition to the above, another important factor is childhood trauma. It is well documented that there are high rates of childhood trauma in forensic populations (e.g. Farrington, 1993; Farrington & West, 1993; Maxfield & Widom, 1996), particularly physical and sexual abuse. It has been suggested that exposure to abuse and violence as a child can alter the way the brain develops (Glaser, 2000; Perry, 2001). Perry (2001) has proposed that when a child is exposed to violence, a set of threat responses is activated in the child's brain. Excess activation of neural systems may alter the brain as it is developing, and result in changes in behavioural, cognitive and emotional functioning. The specific changes will depend on a number of factors including response to threat, frequency and severity of violence, as well as other external factors. While not all individuals exposed to childhood abuse and violence will experience neuropsychological deficits, it is important to consider and control for this factor, particularly with forensic populations. The majority of studies in this review did not screen for childhood trauma, which is a weakness for those studies and this review.

Most of the studies used offender or staff controls, which does not allow for comparison between the clinical groups and the general population. It is likely that staff working in secure institutions as a group, are not representative of the wider population. It has been reported that high security staff have been found to score

higher than community samples on measures of trait aggression, similar to incarcerated patient samples (Blackburn & Fawcett, 1999), which indicates that they do not represent the general population and that results may differ if using non-staff community controls. None of the studies included in this review reported a power analysis. The majority had small sample sizes, which is not unusual when recruiting from forensic samples. However, small sample sizes alongside large batteries of tests and not controlling for confounding variables may lead to type II errors.

A number of studies screened participants for comorbid axis I disorders. This is beneficial as a number of psychiatric conditions have been associated with changes in cognitive function, including schizophrenia (Frith, 1996) and bipolar disorder (Quraishi & Frangou, 2002). It has been suggested that following some serious psychiatric disorders, such as schizophrenia, cognitive ability does not return to premorbid functioning, and some deficits will remain following illness remission/recovery (e.g. Goldberg et al., 1993), highlighting the importance of screening for such disorders.

It is noted that there are a number of challenges and factors to consider when engaging those with antisocial personality and psychopathy in neuropsychological assessments. The studies included in this review reported participants' performance on task in relation to test scores, however, did not comment on the presentation of participants at the time of testing and the impact of this on test performance and results. A number of factors relating to the individual including mood, anxiety, fatigue, attention, agitation, understanding test instructions; and factors relating to the environment, including noise, lighting, and layout of test materials can have an impact on task performance. As individuals with ASPD and psychopathy often display characteristics such as impulsivity, emotional difficulties and rule breaking, it is likely that these influence neuropsychological test performance. Further difficulties arise with tests such as the WCST, which requires the examiner to provide constant feedback on whether the participant is giving the correct response. If an individual is consistently informed that their response is incorrect it is possible that this could lead to feelings of anger, frustration and inadequacy. This is of

particular concern when considering antisocial populations including those with ASPD and psychopathy as common characteristics of the disorders include irritability and low frustration tolerance. It is unclear whether studies in this review considered such factors and whether steps were taken to reduce their impact.

Strengths and limitations of the review

A strength of the current review includes that the quality of some of the studies included in the review were rated by both the author and an independent rater increasing reliability of quality ratings and potentially reducing subjective bias. As this review only included published peer-reviewed studies, publication bias is a limitation of this review. Studies with significant findings are more likely to be published than those with non-significant findings and so these are likely to be under-represented here. However, it is noted that this review did include studies with non-significant results, which were of a 'good' quality.

A further limitation is that the studies included in the review were restricted to those published in English only, and so it is likely that potentially relevant findings from other cultures were missed, and it is possible that the results presented in this review do not accurately reflect all the research that has been conducted in the area. The inclusion and exclusion criteria may have resulted in potentially informative research papers being excluded from this review, and this is reflected in the small number of studies included in the review. However, it is noted that strict criteria can help to reduce heterogeneity and allow meaningful comparisons to be made between papers.

Implications and directions for future research

Despite its limitations, this review does provide some support for the notion of difficulties in neuropsychological functioning of those with psychopathy and ASPD compared with controls, particularly in relation to executive functioning. There is some indication that there may be differences in neuropsychological profiles of the

two disorders, however, due to the limited studies available on ASPD, the results should be interpreted with caution, and are not generalizable.

Identifying neuropsychological deficits in these disorders can help to enhance understanding of interpersonal difficulties, learning problems, and emotional difficulties these individuals present with. Knowledge of cognitive deficits can also help to guide interventions to ensure that they are paced and structured to enhance learning given the neuropsychological difficulties that psychopathic or ASPD individuals may display.

It would be beneficial for further research to be conducted in the area, focusing on specific well-defined groups using the same reliable and valid measures (e.g. PCL-R and DSM). It would also be valuable for future studies to use comprehensive neuropsychological test batteries, assessing a wide range of cognitive functioning, and using the same test battery across studies to allow meaningful comparisons to be made. Incorporating brain imaging aspects to these studies could help to provide further evidence of the brain areas associated with cognitive dysfunction. Further research could also explore differences between male and female offenders, as well as violence in relation to neuropsychological functioning in these disorders.

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Journal Article

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Abstract

Working with personality disordered patients can be challenging and demanding, and research to date suggests staff often express negative attitudes towards this patient group. This study explored factors which may relate to staff attitudes to personality disorder. Staff personality traits, emotion regulation style, empathy, and job-related compassion fatigue were measured, and whether they related to and could predict staff attitudes to personality disorder was explored. Participants included 387 mental health staff working in different mental health services across Scotland, who completed a number of self-report measures. Results indicated that personality traits, emotion regulation style, empathy and compassion fatigue were related to staff attitudes to personality disorder. Empathy and the compassion fatigue component burnout significantly predicted attitudes. These findings contribute to the studies conducted to date, however, further research is required to examine these relationships in more detail, explore other factors which may be related to attitudes, and investigate whether these impact on patient care.

Keywords: staff attitudes, personality disorder, personality, staff characteristics, emotion regulation

Introduction

Personality disorder

Personality disorder is a common mental health problem characterized by difficulties in forming and maintaining relationships with other people, impulse control, and emotion regulation. These difficulties usually arise in childhood and are influenced by a number of cognitive, emotional, and behavioural factors. Studies have estimated the prevalence of personality disorders in the general population at between 4-11%. The prevalence amongst those with mental illness is higher, with 31.4% meeting the criteria for diagnosis (Zimmerman, Rothschild & Chelminski, 2005), and is higher still in offender populations, with between 50-80% of offenders in prison having a personality disorder (Singleton, Meltzer, Gatward, Coid & Deasy, 1998). Given these high rates of personality disorder among those accessing mental health and forensic services, increasing numbers of staff within these services are expected to provide care and support to these individuals. Patients with personality disorder often present a challenge to the mental health system, as the majority of services are not set up to deal with personality disorder presentations. Such presentations do not respond well to traditional medical approaches to dealing with mental illness, increasing pressure on staff working in these areas who may feel they lack the skills to work with these patients. In addition, patients with personality disorder often struggle to access the care they require, being passed from one service to another, often resulting in care being provided during accident and emergency contact or inappropriate short-term admissions to psychiatric inpatient units.

Guidance on working with personality disorder

In recent years, various government initiatives across the UK have highlighted some of the difficulties services experience with personality disordered individuals and have provided guidance on ways to improve care and treatment received by these patients. A joint initiative by the Home Office and Department of Health (DoH) led to the development of services for dangerous offenders with severe personality disorders in England (DSPD programme; DoH/Home Office 1999, 2000). Following this, the National Institute for Mental Health (NIMHE) produced guidance

‘Personality Disorder: no longer a diagnosis of exclusion’ (NIMHE, 2003a) which instructed the need to provide services for individuals with personality disorder in both general and forensic settings, and to provide appropriate training and education to equip staff to provide suitable assessment and treatment to this patient group. This document highlighted the difficulties associated with working with personality disorder and suggested that staff working with these patients would require a high degree of personal and emotional resilience, be able to maintain personal and interpersonal boundaries, as well as the ability to tolerate hostility and manage conflict (NIMHE, 2003a). In order to facilitate the implementation of these recommendations, the NIMHE released a further document, ‘Breaking the cycle of rejection: personality disorder capabilities framework’ (NIMHE, 2003b) which provided specific guidance on the capabilities required of staff working with personality disorder. These initiatives are currently on-going in England.

In Scotland, the government has taken a different approach. Following a report by the Centre for Change and Innovation (CCI) entitled ‘Personality Disorder in Scotland: Demanding Patients or Deserving People?’, the government established a personality disorder network. In addition, the government has focused on female offenders with borderline personality disorder, initiating a pilot project training prison staff in a mentalisation approach to working with these individuals, as well as a community project with a trauma informed approach.

Impact of working with personality disorder

Working with individuals with personality disorders is emotionally demanding (Cox, 1996; Alwin et al., 2006; Kurtz & Turner, 2007), and may increase staff members’ vulnerability to stress (Holmes, 1999; Montgomery, Lloyd & Holmes, 2000). As personality disorder is characterised by patterns of maladaptive behaviours that can be harmful, working with these patients may result in strong emotional reactions in staff. Research suggests that patients with personality disorder are not well-liked by psychiatric professionals, with attitudes towards these individuals being hostile, rejecting, and pessimistic (e.g. Gallop, Lancee & Garfinkle, 1989), often in response to the perception of behaviours displayed by those with personality disorders.

Behaviours including self-harm, hostility, non-cooperation, and perceived manipulation can evoke feelings of anger and frustration in staff. This can lead to staff rejecting, withdrawing from, or avoiding these patients, which can be damaging for the patients and lead to an increase in their harmful and dysfunctional behaviour (Morgan & Priest, 1991; Smith & Hart, 1994), potentially hindering therapeutic progress and generating or reinforcing negative staff attitudes. The resistance of patients with personality disorder to engaging in intervention can leave staff feeling hopeless and powerless in the situation (Nathan, 1999), and staff interpretations of patients as being ‘difficult’ may reflect their own frustrations in dealing with such patients as well as the patients’ presenting symptoms (Hinshelwood, 1999). Staff may also be left feeling dissatisfied with their work achievements and feel drained from the stress of work. An ability to effectively manage difficult emotions is therefore an important skill for staff working with this group of individuals. Research in the area has advocated the notion that staff characteristics are important when working with personality disorder, including resilience, confidence, being non-judgemental, empathic, able to work in a team, and being realistic about what can be achieved with this patient group (Crawford, Adedjei, Price & Rutter, 2010). Although challenging, working with personality disorder is not all negative, and mental health staff do report positive experiences of working with people with personality disorder, alongside the difficulties (Crawford, et al., 2010).

Staff attitudes to personality disorder

An attitude has been defined as a ‘psychological tendency, expressed by evaluating a particular entity with some degree of favour or disfavour’ (Eagly & Chaiken, 2007). An attitude object can be anything that is being evaluated, ranging from physical entity to abstract concept (Bohner & Dickel, 2011). It is suggested that attitudes may be conscious or unconscious (Hitlin & Pinkston, 2013), and are not fixed, but can be changed in light of new information which may contradict or falsify the information that led to the formation of the original attitude (Petty, Tormala, Briñol, & Jarvis, 2006). Attitudes are considered to be made up of cognitive (thoughts, beliefs, opinions), affective (feelings, emotional underpinnings) and behavioural (action) components which develop an overall positive or negative evaluation of an object

(Zanna & Rempel, 1988). It is suggested that these components need not be consistent, and interact in a complex way to establish an evaluation.

Research has found that nursing staff attitudes to personality disorder are generally negative (e.g. Bowers, 2002; Carr-Walker, Bowers, Callaghan, Nijman & Paton, 2004; Bodner, Cohen-Fridel & Iancu, 2011), although those working in specialist personality disorder services expressed more positive attitudes than those working in other areas (Bowers, 2002). It is indicated that nursing staff who specifically volunteered to work with personality disordered patients had more positive attitudes than those who were involuntarily placed in personality disorder services (Carr-Walker et al., 2004). Some research indicates differences between staff groups, with social workers, psychologists, and psychiatrists expressing more positive attitudes and optimism working with this patient group than nursing staff (Bodner et al., 2011; Black et al., 2011). Some studies have explored attitudes among prison staff, and found that in comparison to nurses, prison officers have a more positive attitude to personality disorder (e.g. Carr-Walker et al., 2004), however, attitudes towards prisoners with personality disorder have been found to be more negative than those towards mentally ill prisoners (Paton, Harrison & Jenkins, 2000). Interestingly, it is noted that prison officers who had more positive attitudes perceived individuals with personality disorder as less cognitively competent, whereas nursing staff perceived patients as cognitively competent and responsible for their actions, which may have influenced attitudes (Carr-Walker et al., 2004). It is noted that attitudes between prison officers and nursing staff who volunteered to work with personality disordered individual have been found to be positive compared to nursing staff who did not volunteer to work in such a service (Carr-Walker et al., 2004), indicating that factors influencing attitudes may be related to individual factors such as personality and previous experience of personality disordered individuals, and these may be more influential than organizational factors such as different work environment or training differences.

A few studies have explored factors that may influence attitudes and attitude change in staff groups, and have found that factors at both the organisational and individual

level are important. Individual factors including knowledge, experience, training, beliefs about personality disorder, methods used to manage emotional responses to patients, empathy, and personality style; and organisational factors including complaints procedures, multidisciplinary relations, and management, are influential (Bowers, 2002; Bodner et al., 2011). It has been found that greater knowledge and training, self-management methods, high empathy and high scores on the personality trait of 'openness' are generally related to positive attitudes (Bowers et al., 2006). Self-management methods that were associated with positive attitudes included keeping in mind patients' abuse histories, viewing behaviour as being separate from the individual, utilising staff support and clinical supervision, and having the expectation that patients might let them down (Bowers, 2002). Positive staff attitudes to personality disorder have been linked to lower burnout, greater personal well-being, and improved job performance (Bowers et al., 2006). Importantly, it is noted that longitudinal studies did discover changes in attitudes over time (e.g. Bowers et al., 2006), indicating that if attitudes are negative, these are not fixed, and it is possible to facilitate change towards the positive.

The current study

The research to date indicates it is important that staff working with individuals with personality disorder have an understanding of the disorder, and receive adequate training. Knowledge and education about personality disorders are important aspects in influencing attitudes, however, the personal characteristics of staff, including their personality, and the ability to manage difficult emotions and stress are also likely to influence attitudes of staff, as well as how they respond to patients. The majority of research into staff attitudes to personality disorder has predominantly looked at staff knowledge, experience, and training, with little focus on the influence of the characteristics of staff, and the majority of this research has focused on psychiatric nursing staff and on borderline personality disorder. These studies have relied on correlational statistical analysis, indicating there may be an established link between certain factors and attitudes, but providing no information on causation. Additionally, a number of studies have developed their own measures of attitude, making it difficult to make direct comparisons between studies. This study aims to build on the

existing research and explore staff characteristics, particularly affective components, and the extent to which they relate to and can predict attitudes to personality disorder among mental health staff from a number of different disciplines. Based on some of the findings from previous studies, staff personality traits, emotion regulation style, empathy, and professional quality of life (compassion satisfaction and compassion-fatigue) will be measured and the impact of these on attitudes will be explored.

Hypotheses:

- (a) staff personality traits, emotion regulation style, compassion fatigue and empathy will be correlated with attitudes to personality disorder – with openness, agreeableness, extraversion, conscientiousness, reappraising emotion regulation and empathy showing positive correlations, neuroticism, suppressive emotion regulation and compassion fatigue showing negative relationships
- (b) staff scoring higher on the personality trait ‘openness’ will have more positive attitudes to personality disorder, a reappraising emotion regulation style, high empathy, and low compassion-fatigue
- (c) staff with greater compassion-fatigue and high scores on neuroticism will express more negative attitudes to personality disorder and report a suppressive emotion regulation style
- (d) openness, reappraising emotion regulation, low compassion-fatigue and high empathy will predict positive attitudes to personality disorder

Methodology

Design

This research adopted a cross-sectional non-experimental design. The independent variables measured in the study were personality traits, emotion regulation style, compassion-fatigue, and empathy. The dependent variable measured in the study was attitudes to personality disorder. Additional information was collected from participants, including age, professional group, area of work, experience of working with personality disorder, and access to clinical supervision. The data was collected via an online survey that was emailed to potential participants.

Procedure

Mental health staff who worked in various health boards within NHS Scotland were invited to take part in the study. All clinical mental health staff across a number of professional groups, including psychiatrists, psychologists, nursing staff, social work and occupational therapists were included in the study. Males and females, and both qualified and unqualified staff members were invited to take part in the survey. Staff working in a variety of mental health services, including forensic (including prison in-reach staff), trauma, addictions, adult mental health, older adults, learning disability, and child and adolescent mental health services, were approached to take part. Non-clinical staff members (e.g. administrative and domestic staff) were excluded from the study, as were non-English speaking staff members, due to the lack of feasibility to provide the online survey in multiple languages.

In order to facilitate distribution of the survey, the researcher liaised with senior staff members working in different mental health services in the various health boards. An email containing information about the study and the link to the survey was sent to these staff members, who then cascaded this within their health board/service. Due to this method of distribution, and the survey being distributed so widely, it was not possible to calculate a precise response rate. Approximate figures were available for the number of staff approached which allowed for an approximate response rate to be calculated. The email distributed to staff included information on the purpose of the

study and a link to the online survey. An online information sheet and consent form was presented to participants when they followed the link, and they were required to consent before they were able to proceed to completing the online questionnaires.

Participants

The survey was distributed to approximately 1835 staff. Three hundred and ninety staff completed the online questionnaires. Of these, three sets of data were removed as they were completed by non-clinical staff members (e.g. admin, chaplain), leaving a total of three hundred and eighty seven responses (117 male and 270 female staff, mean age 41.8 years). The response rate was therefore approximately 21%.

Participants included nursing staff (40.8%), psychologists (26.9%), psychiatrists (19.1%), occupational therapy staff (8.3%), social workers (4.1%) and other staff groups (0.8%). The majority of staff worked in adult mental health (60.7%), followed by older adults (10.1%), CAMHS (7.2%), addictions (4.7%), forensic (3.6%), LD (2.8%) and psychotherapy (2.3%). 8.5% of staff worked in other services, including trauma, eating disorders, neuropsychology, or across two or more services. Very few staff members 0.8% (n=3) worked in a specialist personality disorder service, although 77.8% (n=301) reported working with personality disordered patients. The majority of staff (67.2%) reported having access to individual supervision to discuss personality disordered patients, and 47.5% had group supervision for this purpose.

Materials

Data was collected through the use of a number of psychometric questionnaires presented on an online survey. Participants were required to answer all questions in order to submit the survey, and so there were no omitted responses.

Attitudes to Personality Disorder Questionnaire (APDQ)

The APDQ is a 37-item measure of global attitude to personality disorder. The items are affective statements about patients with personality disorder. Participants rate the frequency of their experience of each item on a 6-point Likert scale, ranging from 'never' to 'always'. Five factors can be measured: enjoyment, security, acceptance,

purpose, and enthusiasm, as well as a total APDQ score. Higher scores on the measure reflect more positive attitudes to personality disordered individuals. The APDQ has been widely used in research and has been found to have high internal consistency, with a Cronbach's alpha of .94, and good test-retest reliability, with Pearson's r of .71 (Bowers & Allan, 2006).

Emotion Regulation Questionnaire (ERQ)

The ERQ is a 10-item self-report measure of emotion regulation style, and assesses the use of two strategies: cognitive reappraisal and expressive suppression.

Reappraisal refers to re-interpreting an emotional situation in order to change the emotion associated with it, and suppression refers to inhibiting emotional expression (Gross & John, 2003). Participants were required to rate the extent to which they agree with each statement on a 7-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. The measure has been found to have good reliability and validity (Gross & John, 2003).

Toronto Empathy Questionnaire (TEQ)

The TEQ is a 16-item measure of emotional empathy. Items are rated on a 4-point scale ranging from 'never' to 'always'. The measure has been found to have high internal consistency, convergent validity and test-retest reliability (Spreng, McKinnon, Mar & Levine, 2009).

Professional Quality of Life Scale (ProQOL)

The ProQOL is a 30-item questionnaire measuring professional quality of life. Both positive (compassion satisfaction) and negative (compassion fatigue) aspects of work life are assessed by the measure. The measure comprises three scales: compassion satisfaction, burnout and secondary trauma. Compassion satisfaction refers to the pleasure derived from work, including positive feelings about the people you work with and the quality of work you do. Burnout refers to feelings of exhaustion, anger, frustration and depression in relation to work; and secondary trauma refers to work-related trauma and associated feelings of fear. Participants were required to rate

items on a 5-point scale ranging from ‘never’ to ‘very often’. The questionnaire has been found to have good reliability and validity (Stamm, 2010).

Personality

The International Personality Item Pool (IPIP) is a public domain personality resource widely used in research. IPIP contains a number of items measuring a variety of personality constructs. For the purpose of this study, 50 items measuring the constructs of neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness were used. Participants were required to rate the extent to which each item describes them on a five-point Likert scale with responses ranging from ‘very inaccurate’ to ‘very accurate’. The items have been found to have good reliability, and correlate well with the NEO-PI-R (IPIP, 2001).

Ethical Considerations

Ethical approval was obtained from the Research and Development departments of all the health boards included in this study, and from the Section of Clinical Psychology Ethics Research Panel at the University of Edinburgh.

Informed consent was obtained from each participant. On entering the online survey, participants were initially presented with an information sheet and consent form. They were required to agree to the points on the online consent form before they could proceed to complete the questionnaires. As all the data was anonymised, it was not possible to remove participants’ data from the study once they had submitted their responses as the researcher was not able to identify it. Participants were free to withdraw from the study at any point before submitting their answers, by exiting the website. This was clearly stated on the information sheet. Data obtained via the questionnaires were confidential. Participants were not asked to provide their names on the online questionnaires or any information that would make them personally identifiable. Responses therefore remained anonymous. There were no foreseeable risks to the safety of those who participated in the study, and it was not anticipated that completing the questionnaires would cause participants any distress.

Sample size calculation

Several *a priori* sample size calculations were conducted for the planned analyses. The estimated sample size required for multiple regression was 90 participants. This was based on Green's (1991) suggestion that sample size for regression analyses can be calculated with the equation $N \geq 50 + 8m$, where m is the number of predictor variables. Therefore, as this study has five predictors $50 + 8(5) = 90$. In addition, Cohen's (1992) power primer indicates that for medium effect size with an alpha of 0.05 and power 0.8 (with five predictor variables) a sample size of 91 is required. For the correlational analysis, calculation using G*Power indicated a sample size of 84 would be required for medium effect size, alpha 0.05 and power 0.8.

Results

Information for all variables was collected for the 387 participants who took part in the research. Due to the design of the online questionnaires, there were no missing data. Data was analysed using SPSS version 19.0.

Data Analysis

Prior to statistical tests being conducted, the data to be analysed was tested to ensure that the assumptions of statistical tests were met. The data for the main variables were all measured at the interval level. In order to test the assumption of normal distribution, histograms were plotted for each variable. It was unclear from viewing the histograms whether the data were normally distributed. Due to this difficulty, and the interpretation of histograms being subjective and therefore open to criticism (Field, 2005), the decision was made to conduct a statistical test of normality. The Kolmogorov-Smirnov test was conducted, and results of the test were significant for all variables except attitudes to personality disorder scores. This indicates that the majority of distributions did deviate from normality.

As multiple regression was conducted, additional assumptions of multiple regression were tested. Linearity was tested by plotting expected versus observed values plots. These plots indicated that the data did meet the assumption of linearity. In order to check whether the residuals in the model were independent, the Durbin-Watson test was conducted. The Durbin-Watson statistic was close to 2 in all cases, and not lower than 1 or higher than 3. This suggests that the assumption that errors in regression are independent were met. In order to test the assumption of homoscedasticity, graphs were plotted of residual versus predicted values. From looking at these plots, it appeared that the data met the assumption of homoscedasticity. In order to test the assumption of multicollinearity, variance inflation factors (VIF) were calculated using SPSS. All VIF values were close to 1, indicating that there was no collinearity within the data. Furthermore, tolerance values ($1/VIF$) were all above .2 lending further support to this assumption.

In order to address the issue of the data not being normally distributed, the data was transformed. Log, square root, and reciprocal transformations were attempted, however, this did not result in the normal distribution of data, and therefore non-parametric tests were used for analysis where appropriate. Kendall's tau-b correlational analysis was conducted to explore relationships between variables, Mann-Whitney U and Kruskal-Wallis tests were used to explore differences between groups. Multiple regression was also conducted to explore more detailed relationships between variables.

Descriptive statistics

The average attitudes to personality disorder, personality style, emotion regulation style, empathy, and compassion component scores are summarized in Table 1 below.

Table 1. Mean, median and ranges for scores for of key variables

	Mean (SD)	Median	Range
<i>APDQ</i>	21.12 (2.87)	21.37	11.40-27.57
<i>ERQ</i>			
<i>Reappraisal</i>	30.47 (6.29)	31.00	6-42
<i>Suppression</i>	11.74 (4.20)	11.00	4-23
<i>TEQ</i>	48.54 (5.16)	48.00	29-62
<i>Compassion-fatigue</i>			
<i>Compassion satisfaction</i>	37.66 (4.94)	38.00	22-49
<i>Burnout</i>	22.60 (4.78)	22.00	11-39
<i>Secondary trauma</i>	18.73 (4.26)	18.00	10-37
<i>Personality</i>			
<i>Neuroticism</i>	23.68 (6.18)	23.00	12-43
<i>Extraversion</i>	34.38 (5.43)	34.00	15-49
<i>Openness</i>	37.89 (5.19)	38.00	19-50
<i>Agreeableness</i>	40.01 (4.68)	41.00	25-49
<i>Conscientiousness</i>	38.41 (5.45)	39.00	21-50

Group differences

Mann-Whitney U and Kruskal-Wallis tests were conducted to explore differences in APDQ scores between males and females, age groups, different professional groups,

and different work specialties. The tests were also used to explore whether working with personality disorder, having training specific to personality disorder, and receiving individual or group supervision was related to APDQ scores.

A significant difference was found in APDQ scores between males and females ($U=11502, p<0.01$), with females scoring higher on the measure indicating more positive attitudes to personality disorder. There was a significant difference in APDQ scores between staff who had individual supervision and those who did not ($U=12954, p<0.01$), indicating that those who had supervision had higher scores on the APDQ. There was no significant difference in attitude scores between those who reported working with individuals with personality disorder, compared to those who did not. No significant differences in attitudes were found between those who had access to group supervision compared to those who did not, and between staff members who had personality disorder specific training compared to those who did not have such training. Kruskal-Wallis tests revealed no significant differences in APDQ score between age groups ($H(4)=5.89, p=.21$), different professional groups ($H(5)=10.43, p=.06$) or those working in different specialties ($H(7)=5.61, p=.59$). These findings suggest that gender and individual supervision should be included as covariates in regression analysis. Medians and interquartile ranges (IQRs) of the attitudes scores for different groups are presented in Table 2.

Table 2. Medians and IQRs for the different groups

	Median	IQR
Professional Group		
<i>Psychiatry (medics)</i>	20.32	3.08
<i>Nursing</i>	21.41	4.14
<i>Psychology</i>	21.69	2.65
<i>Social Work</i>	21.19	4.40
<i>Occupational Therapists</i>	22.15	4.07
Specialty		
<i>Adult Mental Health</i>	21.30	3.64
<i>Forensic</i>	21.75	2.34

<i>Learning Disability</i>	22.80	7.93
<i>CAMHS</i>	20.90	3.66
<i>Older Adults</i>	20.80	3.40
<i>Psychotherapy</i>	22.53	3.32
<i>Addictions</i>	22.60	4.96
<i>Work with PD patients</i>		
<i>Yes</i>	21.47	3.62
<i>No</i>	20.80	3.55
<i>Supervision</i>		
<i>Individual Supervision</i>		3.72
<i>No Individual Supervision</i>		3.43
<i>Group Supervision</i>		3.58
<i>No Group Supervision</i>		3.56
<i>Training</i>		
<i>PD training</i>	21.52	3.17
<i>No PD training</i>	20.80	4.40

Relationships between variables

Kendall's tau-b was conducted to explore relationships between attitudes to personality disorder and emotion regulation style, empathy, compassion fatigue and personality traits. All variables correlated significantly with APDQ scores. The analysis revealed that ERQ reappraisal ($\tau=.099, p<0.01$), empathy ($\tau=.190, p<0.01$), compassion satisfaction ($\tau=.225, p<0.01$) and personality scores on extraversion ($\tau=.171, p<0.01$), openness ($\tau=.066, p<0.05$), agreeableness ($\tau=.305, p<0.01$), and conscientiousness ($\tau=.228, p<0.01$) correlated positively with APDQ scores. ERQ suppression ($\tau=-.147, p<0.01$), compassion fatigue components of burnout ($\tau=-.233, p<0.01$) and secondary trauma ($\tau=-.182, p<0.01$), and the personality trait neuroticism ($\tau=-.217, p<0.01$) showed significant negative correlations with APDQ scores. Relationships between variables and the five APDQ factors of enjoyment, security, acceptance, purpose, and enthusiasm were also explored. All scores are summarized in Table 3.

The personality trait openness was significantly positively correlated with a reappraising emotion regulation style ($\tau=.088, p<0.01$), and empathy ($\tau=.189, p<0.01$). There was no significant correlation between openness and compassion fatigue (burnout $\tau=-.006, p=.43$; secondary trauma $\tau=-.008, p=.42$). Neuroticism ($\tau=.85, p<.01$) and compassion fatigue components of burnout ($\tau=.161, p<0.01$) and secondary trauma ($\tau=.116, p<0.01$) showed a significant positive correlation with suppressive emotion regulation style.

Table 3. Kendall's-tau correlation coefficients for all variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1.APDQ total	-																
2.ERQ reappraisal	.099**	-															
3.ERQ suppression	-.147**	-.087**	-														
4.TEQ	.190**	.183**	-.211**	-													
5.Compassionsatisfaction	.225**	.250**	-.085**	.301**	-												
6.Burnout	-.233**	-.147**	.161**	-.144**	-.459**	-											
7.Secondary trauma	-.182**	.014	.116**	-.052	-.190**	.420**	-										
8.Neuroticism	-.217**	-.123**	.085**	-.080*	-.299**	.449**	.340**	-									
9.Extraversion	.171**	.168**	-.188**	.174**	.272**	-.289**	-.122**	-.244**	-								
10.Openness	.066*	.088**	-.161**	.189**	.137**	-.006	.008	-.027	.166**	-							
11.Agreeableness	.305**	.149**	-.181**	.286**	.287**	-.305**	-.177**	-.349**	.223**	.170**	-						
12.Conscientiousness	.228**	.134**	-.114**	.158**	.295**	-.350**	-.227**	-.353**	.229**	.017	.312**	-					
13. APDQ enjoyment	.495**	.172**	-.178**	.261**	.274**	-.164**	-.018	-.146**	.175**	.186**	.304**	.137**	-				
14.APDQ security	.603**	.043	-.087**	.116**	.180**	-.244**	-.278**	-.216**	.196**	.013	.226**	.211**	.258**	-			
15.APDQ acceptance	.653**	.055	-.130**	.191**	.169**	-.229**	-.206**	-.180**	.161**	.042	.301**	.233**	.345**	.551**	-		
16.APDQ purpose	.703**	.074*	-.124**	.158**	.185**	-.169**	-.111**	-.161**	.131**	.064*	.225**	.169**	.380**	.470**	.497**	-	
17.APDQ enthusiasm	.585**	.043	-.066*	.040	.090**	-.165**	-.155**	-.166**	.044	-.049	.161**	.155**	.209**	.365**	.376**	.466**	-

* Significant at $p<0.05$ level (1tailed)

**Significant at $p<0.01$ level (1tailed)

Regression analyses

In order to test whether the personality trait of openness, a reappraising emotion regulation style, empathy, and compassion fatigue (burnout and secondary trauma) could predict attitudes to personality disorder, a regression analysis was conducted on the data. The overall model was significant ($R^2=.157$, $F(5,381)=14.235$, $p<0.01$), and accounted for 15.7% of the variation in APDQ scores. Empathy ($\beta=.187$, $t=3.698$, $p<0.01$) and burnout ($\beta=-.220$, $t=-3.616$, $p<0.01$) significantly contributed to the model (this significance remained when controlling for gender and individual supervision), however the influence of openness, reappraising emotion regulation style and secondary trauma was not significant. The results are summarized in Table 4.

Table 4. Multiple regression analysis results

	<i>B</i>	<i>SE B</i>	<i>β</i>
<i>Reappraisal</i>	.016	.022	.035
<i>Empathy</i>	.104	.028	.187*
<i>Burnout</i>	-.132	.037	-.220*
<i>Secondary Trauma</i>	-.074	.040	-.110
<i>Openness</i>	.027	.027	.049

B – Unstandardized regression coefficient, *SE B* – Standard Error, *β* – standardized regression coefficient

*Significant at $p<0.01$ level

Several additional regression analyses were conducted with personality traits, emotion regulation style, job satisfaction, and empathy as the predictor variables in separate models. The overall model for personality was significant ($R^2=.208$, $F(5,381)=20.061$, $p<0.01$). Agreeableness ($\beta=.328$, $t=5.928$, $p<0.01$) and conscientiousness ($\beta=.136$, $t=2.461$, $p<0.05$) contributed significantly to this model. However, only agreeableness remained significant when controlling for gender and individual supervision. The model for emotion regulation style was also significant ($R^2=.222$, $F(2,384)=9.932$, $p<0.01$), with both reappraisal ($\beta=.105$, $t=2.111$, $p<0.05$), and suppression ($\beta=-.189$, $t=-3.798$, $p<0.01$) making significant contributions to the model. Only suppression remained significant (at the .05 level) when controlling for age and individual supervision. The job satisfaction model was also significant ($R^2=.132$, $F(3,383)=19.453$, $p<0.01$), with compassion satisfaction ($\beta=.178$, $t=2.896$,

$p < 0.01$) and burnout ($\beta = -.153$, $t = -2.090$, $p < 0.05$) contributing significantly to the model. When controlling for gender and individual supervision, only compassion satisfaction remained significant. In this second analysis, secondary trauma also made a significant contribution to the model (at the .05 level). Empathy significantly predicted APDQ scores ($\beta = -.258$, $t = -5.239$, $p < 0.01$) when it was the only predictor variable (significant at the .05 level when controlling for gender and individual supervision).

Discussion

General Findings

This study aimed to explore the relationships between personality, emotion regulation, empathy, professional quality of life, and mental health staff attitudes to personality disorder. Significant correlations were found between attitudes to personality disorder and all variables, the strongest (moderate) correlation being with the personality trait of agreeableness, and weak correlations with all other variables. Moderate correlations were also found between burnout and personality traits of neuroticism, agreeableness and conscientiousness, as well as between agreeableness and APDQ enjoyment. Additional moderate correlations existed between empathy and compassion satisfaction, and neuroticism and secondary trauma. Regression analyses revealed that empathy and burnout were significant predictors of attitudes to personality disorder. Further analyses indicated that agreeableness, suppressive emotion regulation style and compassion satisfaction were also significant predictors of attitudes.

Personality and attitudes

In line with the hypotheses, higher scores on agreeableness, conscientiousness, openness and extraversion were related to more positive attitudes to personality disorder, and high scores on neuroticism was found to be related to more negative attitudes. The finding that all personality traits were significantly correlated with attitudes to personality disorder differs from a previous study by Bowers et al. (2006), which found that openness and neuroticism were significantly related to attitudes (APDQ enjoyment and APDQ security, respectively). This study did replicate the associations between openness and APDQ enjoyment, and neuroticism and APDQ security, however, neuroticism correlated significantly with all APDQ factors which differs from their findings. Additionally, this study indicated that agreeableness has the greatest relationship with attitudes, including an ability to predict attitudes. Differences in findings between this and Bowers et al. (2006) study

may be due to the different participant group used. Bowers et al. (2006) investigated prison officers' attitudes, and all staff members were working in a specific personality disorder unit, whereas the present study investigated mental health staff and the majority did not work in a personality disorder service.

Emotion regulation and attitudes

ERQ reappraisal and suppression were significantly correlated with attitudes, with higher scores on reappraisal and lower scores on suppression being related to more positive attitudes. This is in line with the hypotheses and consistent with previous research (Bowers, 2002; Bowers et al., 2006) that suggests staff self-management methods are related to attitudes to personality disorder. Reappraisal was not found to significantly predict attitudes in a model alongside empathy, compassion-fatigue and openness, which does not support the hypotheses. However, with an emotion regulation predictor model, both reappraisal and suppression significantly predicted attitudes, with suppression remaining significant when controlling for confounders. This finding suggests that staff members' ability to regulate their own emotions is an important factor in influencing their attitudes to patients with personality disorder. As working with such patients is often considered emotionally demanding, it may be that less adaptive management of emotions (i.e. suppression) can lead to increased work stress and exhaustion (burnout) and therefore lead to more negative attitudes towards patients.

Empathy and attitudes

In line with the hypotheses, higher scores on empathy were significantly related to more positive attitudes to personality disorder. This is consistent with previous research in the area (Bowers, 2002; Bodner et al., 2011), which also found that higher levels of empathy was associated with more positive evaluations of patients with personality disorder. Empathy was also found to be a significant predictor of attitudes. This indicates that an individual's capacity to recognise, understand, and mirror the emotional state of another, can increase positive feelings towards others

and is likely to lead to positive attitudes towards them. In a healthcare setting, it is also possible that increased empathy allows for staff members to maintain a positive attitude towards their work more generally, which may then translate into positive attitudes towards those with whom they work.

Professional quality of life and attitudes

In line with the hypotheses, professional quality of life was significantly associated with attitudes to personality disorder, with greater compassion satisfaction and lower levels of burnout and secondary trauma being related to more positive attitudes.

These findings are in line with some previous research (Bowers et al., 2006) that has indicated a relationship between positive attitudes to personality disorder and low staff burnout. Burnout was also found to significantly predict attitudes, indicating that mental health staff members who experience work burnout are more likely to express less positive attitudes to personality disorder. It may be that experiencing increased work stress to the level of burnout can reduce staff members' capacity to maintain empathy, which may in turn result in negative attitudes. In addition, the reported experience of burnout indicates that the individuals' coping responses may have been overwhelmed, and the use of unhelpful (perhaps short-term) emotion regulation strategies may have exacerbated the level of stress. As discussed above, an ability to manage one's emotions is important when working with patients with personality disorder.

Personality, emotion regulation, empathy and professional quality of life

In addition to their relationships with attitudes, the relationships between certain variables were also explored. It was hypothesized that higher scores on the personality trait of openness would be related reappraising emotion regulation style, high empathy, and low compassion-fatigue. This prediction was partially supported as there were significant relationships between openness and empathy and reappraising emotion regulation style, although, no relationship was found between

openness and either component of compassion fatigue. However, it is noted that openness was significantly related to compassion satisfaction suggesting that the trait is associated with the positive aspects of professional quality of life. The relationship between a suppressive emotion regulation style, and compassion-fatigue and neuroticism was also explored. In line with the hypotheses, burnout, secondary trauma, and neuroticism showed significant positive relationships with a suppressive emotion regulation style.

Staff differences

There were no differences in scores on attitudes to personality disorder between different professional groups. This is inconsistent with previous research (Bodner et al., 2011; Black et al., 2011) that suggests nursing staff have more negative attitudes than other professional groups. The lack of significant differences in this study may be due to the differences in numbers of the various professional groups, with the majority of staff in this study being nursing staff. No differences in attitude scores were found between staff working in different specialties. Working with personality disorder and accessing group supervision specific to personality disorder did not impact on attitudes. The finding that there was no difference in attitudes between those working with individuals with personality disorder and those who did not, is inconsistent with previous research (e.g. Bowers, 2002). This finding may be due to uneven numbers in the two groups. It may be that other factors, such as motivation to work with personality disorder, interest in the area, and nature of contact with individuals with personality disorder influenced this. It is unclear whether those who reported not working with personality disorder at the time of completing the questionnaires had any previous experience of working with such individuals, as past experience of working with personality disorder may have influenced reported attitudes. There was a difference in attitudes between male and female staff, with females expressing more positive attitudes. Staff receiving individual clinical supervision expressed more positive attitudes to personality disorder than those who did not access supervision. This fits with findings of previous research (Bowers,

2002), that accessing clinical supervision is related to positive attitudes. Clinical supervision provides a forum in which staff can discuss positive and negative aspects of their experiences at work, reflect on these experiences, and access support from a senior staff member. Having the space to do this when working with a challenging and demanding patient group may help to maintain/enhance personal well-being, and appears to enable staff to maintain a positive attitude to the patients they work with.

Staff characteristics may be particularly relevant when considering attitudes to personality disorder due to the difficulties this group of patients experience, and how they present. Key characteristics of the personality disorders involve experiencing relational difficulties with themselves and others, as well as engaging in maladaptive coping behaviours, often as a result of early traumatic experiences. If trauma is unresolved this may be related to individuals having reduced capacity for reflective function and result in difficulties forming and maintaining meaningful relationships in adulthood. Unresolved emotions relating to trauma may be triggered by staff's actions or interpersonal styles, and these emotions, in turn, may be projected onto staff, who experience such emotions as their own. As these emotions are often negative, this experience of negative emotions evoked by patients with personality disorder may translate into negative attitudes towards this group of patients. It is likely that staff characteristics, including ability to tolerate negative emotional states and having an empathic understanding of the patient and the processes occurring, may influence whether or not these experiences lead to negative attitudes to personality disorder. It may be that increased stress or job burnout hinders staff members' ability to tolerate such emotions and maintain empathy. In addition, due to the complex nature of the patient group and the emotional demands placed on staff, it is important that staff have the adequate support and space for reflection. It is likely that access to clinical supervision is central to maintaining staff well-being and positive attitudes to patients.

Strengths and limitations

There are very few studies to date that have investigated individual factors relating to staff attitudes to personality disorder. This study explored this within a large group of mental health staff, including different professions working across different services. In addition, this study did not focus on a specific personality disorder as the majority of previous research has done. This study is the first to explore the predictive impact of individual factors in relation to attitudes to personality disorder in an attempt to establish causal relationships. However, there are a number of limitations to this study. Firstly, all the measures used in this study were self-report measures, which are not always reliable. It is possible that participants did not respond in an honest manner or responded in a way they perceive to be socially desirable. This may be particularly true of the APDQ as the items on this measure include explicit negative attitude statements. Another limitation of using self-report measures is that there is a possibility that items are not fully understood or are interpreted differently by different participants, making comparisons between responses less reliable.

Although this study included a large group of participants, unequal numbers of staff from various services and different professional groups took part in the study, making it difficult to make meaningful comparisons between these groups. Only three participants worked in a personality disorder service, making it unfeasible to explore whether this factor has a significant influence on attitudes. Additionally, as this study does cover such a wide group it is a heterogeneous population and not all possible covariates that may influence questionnaire responses were measured and controlled for in this study, such as specific events (e.g. assaults at work, experiencing manipulation), mental health problems among staff, and stress at home.

A further limitation of the current study is that the measure of attitudes asked participants to consider their thoughts and feelings towards personality disordered patients overall, and did not distinguish between the different types of personality disorder. This is potentially problematic as different staff members may have had

different personality disorders in mind when completing the questionnaire. As the majority of staff worked in an adult mental health setting, it is possible that most staff had borderline personality disorder in mind when completing the questionnaire as this is the personality disorder that is most common in such a setting. In addition, as individuals with different personality disorders may present very differently to services, it is likely that they would evoke different feelings and thoughts in staff, and this is not likely to have been captured in the findings of this study. For instance, individuals with borderline personality disorder are known to present to services frequently, engage in behaviours that may be distressing for others to witness, and may make attempts to elicit increased care and support from staff. In contrast, individuals with avoidant personality disorder are less likely to initiate contact with services in the first instance, present as overly compliant, and are less likely to demand support and resources from services. It is likely that working with individuals with such different presentations would lead to different attitudes towards the individuals. It is also noted that there is overlap between the various personality disorders, and the validity and reliability for the diagnosis of personality disorder has been challenged. The current diagnostic approach has been criticised for not being supported by research or personality theory. It is suggested that a dimensional approach may be more robust than the current categorical approach, however, the diagnostic classificatory systems have not yet adopted such an approach.

Although the findings of this study are statistically significant, it is unclear whether this would translate into clinical significance. It is noted that the majority of relationships were weak, with only one being moderate. It is possible that the statistical significance here reflects the large sample size rather than a meaningful relationship between the various staff characteristics and attitudes to personality disorder. The results should therefore be interpreted with caution.

Clinical implications and future directions

The findings of this study help to enhance understanding of factors that influence staff attitudes to personality disorder, and how these factors may interact. Personal characteristics of staff are related to attitudes towards personality disorder. It is specified in government guidance (NIMHE, 2003a) on working with personality disorder that it would be beneficial for staff to have appropriate personal qualities, and this study may help to identify some of those qualities. The findings indicate that it may be helpful for services to provide training for staff working with personality disorder that incorporates help to develop and enhance adaptive emotion regulation strategies. Alongside teaching and training courses to provide an understanding of what personality disorder is and how it develops, content should also include some of the challenges of working with this group of patients, the potential impact on staff psychological and emotional well-being, as well as ways to manage this individually and with support from others, including information on support systems available in the workplace. It may be that with more adaptive coping strategies and feeling supported by the organization, burnout and negative attitudes to personality disorder can be reduced. This may also help to increase feelings of job satisfaction which may in turn increase positivity towards patients with personality disorder.

Although only three staff reported working in a specific personality disorder service, the majority of participants in this study reported working with personality disordered patients. This indicates that training should be widely distributed, across different services, with the level of training being matched to the specific service. The finding that those who received individual supervision showed more positive attitudes suggests that having allocated time for reflection and support is an important factor in maintaining positivity. This is also recommended in guidance documents for working with personality disorder (NIMHE, 2003a). The guidance also recommends group supervision, although this study did not find a relationship between attitudes and group supervision.

This study has identified some factors related to attitudes to personality disorder, but it would be beneficial for further research to be conducted in the area. The impact of other personal characteristics, as well as organizational factors on attitudes could be explored. Further research with equal numbers of staff from different groups and different types of services would be beneficial so more meaningful comparisons can be made between these groups. Studies investigating the impact of staff teaching/training or intervention can be helpful in identifying how to reduce staff burnout, enhance staff well-being, maintain positive attitudes, and allow effective working with this patient group. It would also be beneficial to explore dynamics within staff teams, and relationships between services that provide joint care to patients with personality disorder to ascertain their impact on attitudes. In addition, whether attitudes can predict staff behaviour and affect the care patients receive is an important area that requires investigation.

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Appendices

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Appendix A: Author guidelines for the Journal of Clinical and Experimental Neuropsychology

Taken from:

<http://www.tandfonline.com/action/authorSubmission?journalCode=ncen20&page=instructions#.UsGoQ7S3IR1>

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- **Results** of statistical tests should be given in the following form: "... results showed an effect of group, $F(2, 21) = 13.74$, $MSE = 451.98$, $p < .001$, but there was no effect of repeated trials, $F(5, 105) = 1.44$, $MSE = 17.70$, and no interaction, $F(10, 105) = 1.34$, $MSE = 17.70$." Other tests should be reported in a similar manner to the above example of an F -ratio. For a fuller explanation of statistical presentation, see the *APA Publication Manual* (6th ed.).
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Appendix B: Systematic review: rejected studies

<i>Study</i>	<i>Reason for exclusion</i>
Kirkpatrick et al. (2007)	ASPD/psychopathy not a distinct group
Stevens et al. (2001)	Male and female participants
Bergvall et al. (2003)	ASPD/psychopathy not a distinct group
Crowell et al. (2003)	Non-clinical/forensic population
Stevens et al. (2003)	Non-clinical/forensic population
Dinn et al. (2000)	Non-clinical/forensic population
Snow & Thurber (1997)	Males and female participants, no control group
Waldstein et al. (1996)	Males and female participants
Deckel et al. (1996)	Non-clinical/forensic population
Fitzgerald & Demakis (2007)	Review article
Zeier et al. (2012)	Limited info on P vs non-P analysis
Blair & Lee (2013)	Editorial
Perez (2012)	Review article
Beaver et al. (2012)	Adolescents, longitudinal, male and female participants
Blair & Mitchell (2009)	Review article
Hansen et al. (2007)	No control group, no P vs non-P analysis
Sadeh et al. (2008)	Non-clinical/forensic population
Ross et al. (2007)	Male and female participants
Mitchell et al. (2006)	Case study
Sreenivasan et al. (2008)	No control group
Teichner et al (2001)	No ASPD/psychopathy
Blair (2001)	Review article
Losel & Schmucker (2004)	Limited P vs non-P analysis
Serin & Kuriychuk (1994)	Review article

Appendix C: Systematic review: quality criteria checklist

Study Title			
1	The study addresses an appropriate and clearly focused question/ aims clearly stated	Well-covered	3
		Adequate	2
		Poor	1
		Not reported/not applicable	0
2	Participant inclusion and exclusion criteria – reported for both clinical and control groups	Well-covered	3
		Adequate	2
		Poor	1
		Not reported/not applicable	0
3	Participant characteristics reported – e.g. age, education, socio-economic status	Well-covered	3
		Adequate	2
		Poor	1
		Not reported/not applicable	0
4	Matched control group – e.g. matched on age, education, drug use, head injuries	Well-covered	3
		Adequate	2
		Poor	1
		Not reported/not applicable	0
5	Clinical groups clearly and reliably defined – based on valid and reliable assessment	Well-covered	3
		Adequate	2
		Poor	1
		Not reported/not applicable	0
6	Neuropsychological assessment – use of valid and reliable measures	Well-covered	3
		Adequate	2
		Poor	1
		Not reported/not applicable	0
7	Statistical tests – suitable to test hypotheses, clearly reported	Well-covered	3
		Adequate	2
		Poor	1
		Not reported/not applicable	0
8	Power – power calculation or justification for sample size	Well-covered	3
		Adequate	2
		Poor	1
		Not reported/not applicable	0
9	Confounders – identification of confounders and steps taken to reduce impact	Well-covered	3
		Adequate	2
		Poor	1
		Not reported/not applicable	0
10	Generalisability of findings	Well-covered	3
		Adequate	2
		Poor	1
		Not reported/not applicable	0

Appendix D: Author guidelines for the Journal of Personality and Social Psychology

Taken from: <http://www.apa.org/pubs/journals/psp/index.aspx>

Masked Review Policy

The Attitudes and Social Cognition section and the Interpersonal Relations and Group Processes section have adopted a policy of masked review for all submissions. The cover letter should include all authors' names and institutional affiliations. The first page of text should omit this information but should include the title of the manuscript and the date it is submitted. Every effort should be made to see that the manuscript itself contains no clues to the authors' identity.

Masked reviews will be done on all submissions to the Personality Processes and Individual Differences section unless unmasked review is requested by the author. This request should be included in the submission letter.

Manuscript Preparation

Prepare manuscripts according to the [*Publication Manual of the American Psychological Association* \(6th edition\)](#). Manuscripts may be copyedited for bias-free language (see Chapter 3 of the *Publication Manual*).

Review APA's [Checklist for Manuscript Submission](#) before submitting your article. If your manuscript was mask reviewed, please ensure that the final version for production includes a byline and full author note for typesetting.

Double-space all copy. Other formatting instructions, as well as instructions on preparing tables, figures, references, metrics, and abstracts, appear in the *Manual*. Below are additional instructions regarding the preparation of display equations and tables.

Display Equations

We strongly encourage you to use MathType (third-party software) or Equation Editor 3.0 (built into pre-2007 versions of Word) to construct your equations, rather than the equation support that is built into Word 2007 and Word 2010. Equations composed with the built-in Word 2007/Word 2010 equation support are converted to low-resolution graphics when they enter the production process and must be rekeyed by the typesetter, which may introduce errors.

To construct your equations with MathType or Equation Editor 3.0:

- Go to the Text section of the Insert tab and select Object.
- Select MathType or Equation Editor 3.0 in the drop-down menu.

If you have an equation that has already been produced using Microsoft Word 2007 or 2010 and you have access to the full version of MathType 6.5 or later, you can convert this equation to MathType by clicking on MathType Insert Equation. Copy the equation from Microsoft Word and paste it into the MathType box. Verify that your equation is correct, click File, and then click Update. Your equation has now been inserted into your Word file as a MathType Equation.

Use Equation Editor 3.0 or MathType only for equations or for formulas that cannot be produced as Word text using the Times or Symbol font.

Tables

Use Word's Insert Table function when you create tables. Using spaces or tabs in your table will create problems when the table is typeset and may result in errors.

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Abstract and Keywords

All manuscripts must include an abstract containing a maximum of 250 words typed on a separate page. After the abstract, please supply up to five keywords or brief phrases.

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List references in alphabetical order. Each listed reference should be cited in text, and each text citation should be listed in the References section.

Examples of basic reference formats:

- **Journal Article:**
Hughes, G., Desantis, A., & Waszak, F. (2013). Mechanisms of intentional binding and sensory attenuation: The role of temporal prediction, temporal control, identity prediction, and motor prediction. *Psychological Bulletin*, 139, 133–151. <http://dx.doi.org/10.1037/a0028566>
- **Authored Book:**
Rogers, T. T., & McClelland, J. L. (2004). *Semantic cognition: A parallel distributed processing approach*. Cambridge, MA: MIT Press.
- **Chapter in an Edited Book:**
Gill, M. J., & Sypher, B. D. (2009). Workplace incivility and organizational trust. In P. Lutgen-Sandvik & B. D. Sypher (Eds.), *Destructive organizational communication: Processes, consequences, and constructive ways of organizing* (pp. 53–73). New York, NY: Taylor & Francis.

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The APA Ethics Office provides the full [Ethical Principles of Psychologists and Code of Conduct](#) electronically on its website in HTML, PDF, and Word format.

You may also request a copy by [emailing](#) or calling the APA Ethics Office (202-336-5930). You may also read "Ethical Principles," December 1992, *American Psychologist*, Vol. 47, pp. 1597–1611.

Appendix E: Ethical Approval



Reena Lad
2/8 Belhaven Place
Edinburgh
EH10 5JN

SCHOOL of HEALTH IN SOCIAL SCIENCE
CLINICAL PSYCHOLOGY
The University of Edinburgh
Medical School
Doorway 6, Teviot Place
Edinburgh EH8 9AG

Telephone 0131 651 3969
Fax 0131 650 3891
Email submitting.ethics@ed.ac.uk

27 May 2013

Dear Reena,

Application for Level 1 Approval

Re: Staff attitudes to personality disorder

Thank you for submitting the above research project for review by the Section of Clinical Psychology Ethics Research Panel. I can confirm that the submission has been independently reviewed and was approved on the 17th May 2013.

Should there be any change to the research protocol it is important that you alert us to this as this may necessitate further review.

Yours sincerely,

Kirsty Gardner

Secretary
Clinical Psychology

University Hospitals Division

Queen's Medical Research Institute
47 Little France Crescent, Edinburgh, EH16 4TJ

FM/SS/approval

09 July 2013

Miss Reena Lad
Royal Edinburgh Hospital
Psychology Department
2nd Floor Mackinnon House
Edinburgh
EH10 5HF



Research & Development
Room E1.12
Tel: 0131 242 3330
Fax: 0131 242 3343

Email: R&DOffice@luht.scot.nhs.uk

Director: Professor David E Newby

Dear Miss Lad

Lothian R&D Project No: 2013/0066

Title of Research: Staff attitudes to personality disorder: the role of personality, emotion regulation, empathy and compassion

Patient Information Sheet: Version 1.0 **Consent Form:** Version 1.0 dated May 2013
dated May 2013

Protocol: Version 1 dated May 2013

I am pleased to inform you that this study has been approved for NHS Lothian and you may proceed with your research, subject to the conditions below. This letter provides Site Specific approval for NHS Lothian.

Please note that the NHS Lothian R&D Office must be informed if there are any changes to the study such as amendments to the protocol, recruitment, funding, personnel or resource input required of NHS Lothian. This includes any changes made subsequent to management approval and prior to favourable opinion from the REC.

Substantial amendments to the protocol will require approval from the ethics committee which approved your study and the MHRA where applicable.

Please inform this office when recruitment has closed and when the study has been completed.

I wish you every success with your study.

Yours sincerely

A handwritten signature in black ink that reads 'Fiona McArdle'.

Ms Fiona McArdle
Deputy R&D Director

Cc Paul Dearie, QA Manager
 Matthias Schwannauer, Supervisor
 Pamela Shand, NRS

10 July 2013

Miss Reena Lad
Trainee Clinical Psychologist
Psychology Dept, 2nd Floor MacKinnon House
Royal Edinburgh Hospital
Morningside
Edinburgh EH10 5HF

NHS GG&C Board Approval

Dear Miss Lad,

Study Title:	Staff attitudes to personality disorder: the role of personality, emotion regulation, empathy and compassion
Principal Investigator:	No Local Investigator
GG&C HB site	All GG&C
Sponsor	University of Edinburgh
R&D reference:	GN13CP298
REC reference:	n/a
Protocol no:	V1; May 2013
(including version and date)	

I am pleased to confirm that Greater Glasgow & Clyde Health Board is now able to grant Approval for the above study.

Conditions of Approval

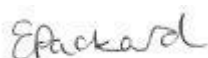
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Please add this approval to your study file as this letter may be subject to audit and monitoring.
Your personal information will be held on a secure national web-based NHS database. I wish you every success with this research study

Yours sincerely,



Dr Erica Packard
Research Co-ordinator

Cc: NRSPcc
Matthias Schwannauer (University of Edinburgh)

Miss Reena Lad
Psychology Dept
2nd Floor, Mackinnon House
Royal Edinburgh Hospital
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Date 8 July 2013
Our Ref 13-033 NRS13/MH106
Enquiries to Aileen Yell
Tel No 01383 623623 Ext 20940
Email aileen.yell@nhs.net

Dear Miss Lad

Project Title: Staff attitudes to personality disorder : the role of personality, emotion regulation, empathy and compassion

Thank you for your application to carry out the above project. Your project documentation (detailed below) has been reviewed for resource and financial implications for NHS Fife and I am happy to inform you that NHS permission for the above research has been granted on the basis described in the application form, protocol and supporting documentation. The documents reviewed were:

Document	Version	Date
Research Proposal	1.0	May 2013
IRAS R&D Form	3.5	3 June 2013
IRAS SSI Form	3.5	3 June 2013
Consent Form	1.0	May 2013
Participant Information Sheet	1.0	May 2013
Questionnaire – Demographic Information	1	May 2013
Personality Questionnaire		
Questionnaire – APD		
Questionnaire – ER		
Questionnaire – ProQOL		
Questionnaire – Toronto Empathy		
NRS-PCC Certificate of Compliance		2 July 2013

The terms of the approval state that you are the investigator authorised to undertake this study within NHS Fife.

I note that review by an NHS Research Ethics Committee has not been necessary since the study involves NHS staff only.

The sponsors for this study are University of Edinburgh.

Details of our participation in studies will be included in annual returns we are expected to complete as part of our agreement with the Chief Scientist Office. Regular reports of the study require to be submitted. Your first report should be submitted to Dr A Wood, R&D Manager, R&D Department, Queen Margaret Hospital, Whitefield Rd, Dunfermline, KY12 0SU (Amanda.wood3@nhs.net) in 12 months time and subsequently at yearly intervals until the work is completed. A Lay Summary will also be required upon completion of the project.

In addition, approval is granted subject to the following conditions:-

- All research activity must comply with the standards detailed in the Research Governance Framework for Health & Community Care (<http://www.cso.scot.nhs.uk/publications/resgov/resgov.htm>), health & safety regulations, data protection principles, other appropriate statutory legislation and in accordance with Good Clinical Practice (GCP).
- Any amendments which may subsequently be made to the study should also be notified to Aileen Yell, Research Governance Officer (aileen.yell@nhs.net), as well as the appropriate regulatory authorities. Notification should also be given of any new research team members post approval and/or any changes to the status of the project.
- This organisation is required to monitor research to ensure compliance with the Research Governance Framework and other legal and regulatory requirements. This is achieved by random audit of research. You will be required to assist with and provide information in regard to monitoring and study outcomes (including providing recruitment figures to the R&D office as and when required).
- As custodian of the information collated during this research project you are responsible for ensuring the security of all personal information collected in line with NHS Scotland IT Security Policies, until the destruction of this data.
- Permission is only granted for the activities for which a favourable opinion has been given by the REC (and which have been authorised by the MHRA where appropriate).
- The research sponsor or the Chief Investigator or local Principal Investigator at a research site may take appropriate urgent safety measures in order to protect research participants against any immediate hazard to their health or safety. The R&D office (aileen.yell@nhs.net) should be notified that such measures have been taken. The notification should also include the reasons why the measures were taken and the plan for further action. The R&D office should be notified within the same time frame of notifying the REC and any other regulatory bodies.

I would like to wish you every success with your study and look forward to receiving a summary of the findings for dissemination once the project is complete.

Yours sincerely



DR STELLA CLARK
Medical Director, Primary Care
NHS Fife

*Cc : Aileen Yell, Research Governance Officer, NHS Fife, Lynebank Hospital, Dunfermline
NRSPCC, R&D Office, Foresterhill House Annex, Foresterhil, Aberdeen AB25 2ZB*

Research and Development Foresterhill House Annexe
Foresterhill
ABERDEEN
AB25 2ZB



Miss Reena Lad
Royal Edinburgh Hospital
Psychology Department
2nd Floor Mackinnon House
Royal Edinburgh Hospital
Morningside, Edinburgh
EH10 5HF

Date 05/07/2013
Project No 2013MH007
Enquiries to Lynn Massie
Extension 53846
Direct Line 01224 553846
Email grampian.randdpermissions@nhs.net

Dear Miss Lad

Management Permission for Non-Commercial Research

STUDY TITLE: Staff attitudes to personality disorder: the role of personality, emotion regulation, empathy and compassion
PROTOCOL NO: Version 1 dated May 2013
REC REF: N/A
NRS REF: NRS13/MH106

Thank you very much for sending all relevant documentation. I am pleased to confirm that the project is now registered with the NHS Grampian Research & Development Office. The project now has R & D Management Permission to proceed locally. This is based on the documents received from yourself and the relevant Approvals being in place.

All research with an NHS element is subject to the Research Governance Framework for Health and Community Care (2006, 2nd edition), and as Chief or Principal Investigator you should be fully committed to your responsibilities associated with this.

It is particularly important that you inform us when the study terminates.

The R&D Office must be notified immediately and any relevant documents forwarded to us if any of the following occur:

- A change of Principal Investigator, Chief Investigator or any additional research personnel
- Premature project termination
- Any amendments – substantial or non-substantial (particularly a study extension)
- Any change to funding or any additional funding

We hope the project goes well, and if you need any help or advice relating to your R&D Management Permission, please do not hesitate to contact the office.

Yours sincerely

A handwritten signature in black ink, appearing to read 'S. Ridge', with a long, sweeping horizontal stroke extending to the right.

Susan Ridge
Non-Commercial Manager

c.c. NRSPCC NHS Grampian

Miss Reena Lad
Trainee Clinical Psychologist
Psychology Department, 2nd Floor Mackinnon
House, Royal Edinburgh Hospital
Morningside
Edinburgh
EH10 5HF

R&D Department
Corporate Services Building
Monklands Hospital
Monkscourt Avenue
AIRDRIE
ML6 0JS

Date:	3 July 2013
Enquiries to:	Lorraine Windsor, R&D Facilitator
Direct Line	01236 712459
Email	Lorraine.Windsor@lanarkshire.scot.nhs.uk

Dear Miss Lad

Project title: Staff attitudes to personality disorder: the role of personality, emotion regulation, empathy and compassion

R&D ID: L13055

NRS ID Number: NRS13/MH106

I am writing to you as Chief Investigator of the above study to advise that R&D Management approval has been granted for the conduct of your study within NHS Lanarkshire.

For the study to be carried out you are subject to the following conditions:

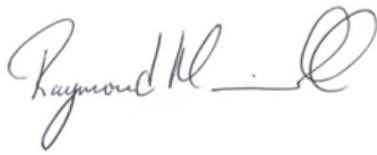
Conditions

1. You are required to comply with Good Clinical Practice, Ethics Guidelines, Health & Safety Act 1999 and the Data Protection Act 1998.
2. The research is carried out in accordance with the Scottish Executive's Research Governance Framework for Health and Community Care (copy available via the Chief Scientist Office website: <http://www.show.scot.nhs.uk/cso/> or the Research & Development Intranet site: <http://firstport/sites/randd/default.aspx>).
3. You must ensure that all confidential information is maintained in secure storage. You are further obligated under this agreement to report to the NHS Lanarkshire Data Protection Office and the Research & Development Office infringements, either by accident or otherwise, which constitutes a breach of confidentiality.
4. Clinical trial agreements (if applicable), or any other agreements in relation to the study, have been signed off by all relevant signatories.
 - You must contact the R&D Department if/when the project is subject to any minor or substantial amendments so that these can be appropriately assessed, and approved, where necessary.
 - You notify the R&D Department if any additional researchers become involved in the project within NHS Lanarkshire

- You notify the R&D Department when you have completed your research, or if you decide to terminate it prematurely.
- You must send brief annual reports followed by a final report and summary to the R&D office in hard copy and electronic formats as well as any publications.
- If the research involves any investigators who are not employed by NHS Lanarkshire, but who will be dealing with NHS Lanarkshire patients, there may be a requirement for an SCRO check and occupational health assessment. If this is the case then please contact the R&D Department to make arrangements for this to be undertaken and an honorary contract issued.

I trust these conditions are acceptable to you.

Yours sincerely,



Raymond Hamill – Corporate R&D Manager

cc.

NAME	TITLE	CONTACT ADDRESS	ROLE
Dr Matthias Schwannauer	Programme Director	University of Edinburgh	Sponsor Contact
Dr Nicola Cogan	Clinical Psychologist	NHS Lanarkshire	Named Contact
Dr Gary Tanner	Clinical Psychologist	NHS Lanarkshire	Named Contact

c.c – (email)
nhsq.nrscc@nhs.net

Appendix F: Participant sheets



Consent Form

Staff Attitudes to Personality Disorder: the role of personality, emotion regulation, empathy and compassion

Researcher: Reena Lad, Trainee Clinical Psychologist

Supervisor: Professor Matthias Schwannauer

1. I confirm that I have read and understood the information sheet for the above study.
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason, by exiting the website before my responses have been submitted.
3. I understand that my responses will remain confidential.
4. I understand that taking part in this study will not have any effect on my employment and that my supervisor/manager will not see my responses.
5. I agree to take part in the above study.

Researcher contact details:

Reena Lad

Psychology Department,

2nd Floor, MacKinnon House

Royal Edinburgh Hospital, Morningside

EH10 5HF

Tel: 0131 537 6905;

Email: reena.lad@nhs.net

Participant Information Sheet

Staff Attitudes to Personality Disorder: the role of personality, emotion regulation, empathy and compassion

Researcher: Reena Lad, Trainee Clinical Psychologist
Supervisor: Professor Matthias Schwannauer

Purpose of the study

This research is being conducted as part of a Doctorate in Clinical Psychology. This study aims to explore the factors which may influence and predict staff attitudes to personality disorder (PD).

What does the study involve?

If you choose to take part in the study you will be asked to complete a number of online questionnaires. There are six questionnaires in total: these will include a brief demographic questionnaire relating to you, your current job, and experience of working with PD, and questionnaires measuring individual characteristics and attitudes to PD. It is estimated that the questionnaires will take approximately 20-30 minutes to complete in total.

You will not be asked to provide your name on the online questionnaires or any information that would make you personally identifiable. Your responses will therefore remain anonymous. The data collected will be available to the researcher and their supervisor. Any report or publication resulting from this study will not include any information that can identify you personally as a participant in the study.

As a thank you for your participation, you can be entered into a prize draw to win an Amazon voucher worth £100. At the end of the survey, you will be asked to follow a link, where you can provide your e-mail address to enter the prize draw.

Do I have to take part in the study?

Participation in this study is completely voluntary. If you agree to take part then you will be asked to complete the consent section before proceeding with the questionnaires. As all the data is anonymised, it will not be possible to remove your data from the study once you have submitted your responses as we will not be able to identify it. You are free to withdraw from the study at any point before submitting your answers, by exiting the website.

Are there any risks?

The study requires you complete a number of questionnaires, and it is not anticipated that this will cause any harm or distress.

Concerns or complaints

If you have a concern about any aspect of this study you may speak to the researcher, who will do their best to solve the problem.

Researcher contact details: Reena Lad, Psychology Department, 2nd Floor, MacKinnon House, Royal Edinburgh Hospital, Morningside, EH10 5HF, 0131 537 6905; reena.lad@nhs.net

If you do not wish to speak to the researcher, you should contact the supervisor of the project using the contact information provided.

Supervisor contact details: Dr Matthias Schwannauer, Programme Director, Section of Clinical and Health Psychology, School of Health in Social Science, The University of Edinburgh, Medical School, Teviot Place, Edinburgh, EH8 9AG.

Ethics

This research has been reviewed by, and received ethical approval through the School of Health in Social Science Research Ethics Committee, University of Edinburgh.

Further information and contact details

Should you require any further information regarding the research please do not hesitate to contact the researcher (Reena Lad) at: Psychology Department, 2nd Floor, MacKinnon House, Royal Edinburgh Hospital, Morningside, EH10 5HF, 0131 537 6905; reena.lad@nhs.net